

**CHARLES M. SCHULZ
SONOMA COUNTY AIRPORT MASTER PLAN UPDATE
ENVIRONMENTAL BASELINE DATA REPORT**

Prepared by:

LSA Associates, Inc.
2215 5th Street
Berkeley, California 94710
(510) 540-7331

LSA

October 2007

TABLE OF CONTENTS

A.	LAND USE.....	1
B.	AIR QUALITY.....	12
C.	WATER QUALITY	17
D.	HAZARDOUS MATERIALS.....	23
E.	BIOLOGICAL RESOURCES.....	29
F.	CULTURAL AND PALEONTOLOGICAL RESOURCES.....	38

APPENDICES

Appendix A: Charles M. Schulz Sonoma County Airport Master Plan Update Biological Assessment

Appendix B: Charles M. Schulz Sonoma County Airport Master Plan Update Wildlife Habitat
Management Plan

Appendix C: Charles M. Schulz Sonoma County Airport Master Plan Update Cultural and
Paleontological Resources Memorandum

FIGURES

Figure 1:	Regional Location	2
Figure 2:	Surrounding Land Use.....	5
Figure 3:	Site Features, Habitats and Vegetation Communities	19
Figure 4:	Hazardous Materials Sites	25

TABLES

Table 1:	Federal and State Ambient Air Quality Standards	15
Table 2:	Results from Santa Rosa Ambient Air Quality Monitoring and Exceeded Standards, 2002 to 2004.....	16
Table 3:	Results from Santa Rosa Ambient Air Quality Monitoring and Exceeded Standards, 2002 to 2004.....	16

This Environmental Baseline Data Report has been prepared to provide Sonoma County decision-makers with information concerning the potential environmental impacts associated with implementation of the Airport Master Plan. Environmental baseline conditions described in this report will be appended to the Airport Master Plan and will be used by Sonoma County decision-makers to identify potential conflicts between proposed changes to Airport land uses or operations, and environmental resources, as one way of preparing a work scope for comprehensive environmental analysis (e.g., an Environmental Assessment/Environmental Impact Report).

This report includes a brief discussion of the following environmental factors and their spatial distribution within and in the vicinity of the Airport, as directed by the Federal Aviation Administration (FAA): Land Use; Air Quality; Water Quality; Hazardous Materials; Biological Resources; and Cultural Resources.

A. LAND USE

This section describes existing land uses and land use trends within and in the vicinity of the Sonoma County Airport.

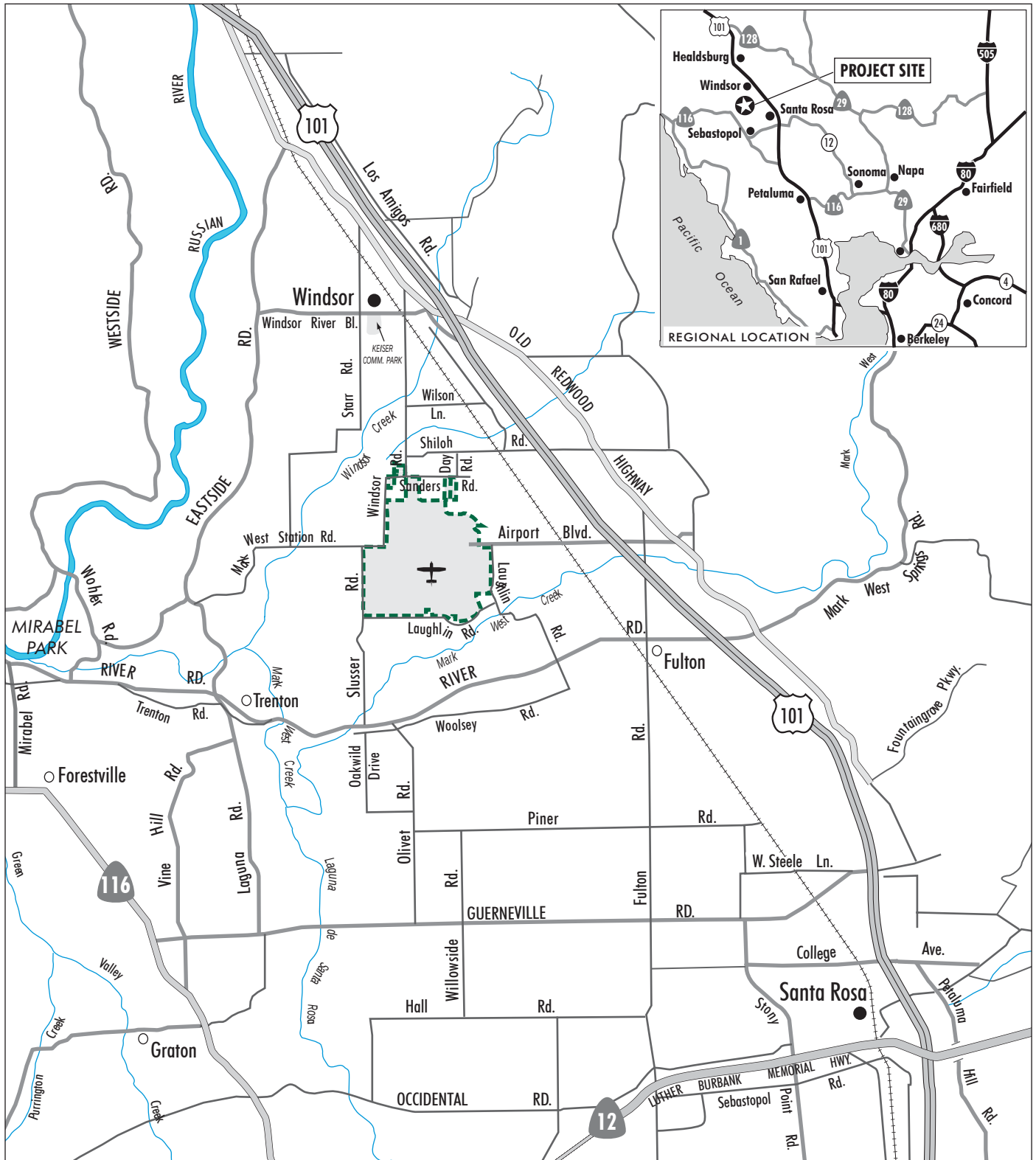
1. Existing Airport Land Use

The Airport is located in Sonoma County, approximately ½ mile south of the Town of Windsor and approximately 7 miles northwest of the City of Santa Rosa (see Figure 1). The facility is accessed via the Airport Boulevard exit off of Highway 101. Airport facilities and services are located at the terminus of Airport Boulevard, which is the primary access road linking the Airport to Highway 101. The Airport is generally bounded by Sanders Road to the north, North Laughlin Road and Skylane Boulevard to the east, Laughlin Road to the south, and Slusser Road and Windsor Road to the west.

The existing Airport encompasses approximately 1,047 acres, and consists of: two paved runways; space for 623 based and transient aircraft (including 261 spaces in hangars); a 7,600 square foot terminal building; an air traffic control tower; an aircraft rescue and fire fighting equipment building; and approximately 590 vehicle parking spaces. Runway 14-32, which has a northwest/southeast orientation and serves as the Airport's primary runway, is approximately 5,115 feet long by 150 feet wide. Runway 1-19, which has a north/south orientation, is approximately 5,002 feet long by 150 feet wide.¹

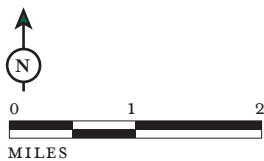
Approximately 400 acres of land at the Airport, including much of the area between the two runways, is leased to the Sonoma County Water Agency Sanitation Zone for use as sprinkler fields, for discharge of treated effluent. These sprinkler fields are planted in sorghum and are custom-harvested. In addition, two vernal pools constructed for mitigation purposes are located in the northwest corner of the Airport. These vernal pools preserve and expand populations of Burke's Goldfield, which is a federally-listed endangered plant species. Another 16 vernal pools were constructed in the vicinity of the northern portion of the Airport in summer, 2002.

¹ Sonoma County Permit and Resource Management Division, 1998. *Sonoma County Airport Master Plan*. December 15.



LSA

FIGURE 1



AIRPORT PROPERTY

Charles M. Schulz
 Sonoma County Airport Master Plan Update
 Environmental Baseline Data Report
 Regional Location

Other on-site land uses include a former County dump site in the extreme western portion of the site, bounded by Mark West Station Road to the north and Slusser Road to the west. In addition, the Airport owns several parcels to the north of the two runways and Redwood Creek; these parcels currently contain agricultural and rural residential uses.

Regional air carrier United Express removed its turbo-prop airplanes and operations from the Airport in October, 2001, citing poor profit ratios despite high load factors. In the process of identifying new carriers, the Airport has been informed by potential carriers that runway shortness is a constraint that could limit operations and impact the economics of providing air carrier service at the Airport. Runway extension (or construction) is considered essential to successfully attracting a new air carrier. The new regional jets that are replacing turbo-prop airlines require a usable runway length of approximately 6,000 feet. A runway feasibility study was initiated in 2002 to evaluate several runway extension alternatives as well as the feasibility of constructing an entirely new 6,000 foot long runway.

Despite the poor profit ratios of United Express, in April 2006, Horizon Air entered into an agreement with the Airport to begin air service to Los Angeles (LAX) and Seattle (SEA), starting March 20, 2007.

2. Existing Land Use in the Vicinity of the Airport

The Airport is located in an important agricultural area that is experiencing urbanizing pressures from Windsor, Santa Rosa, and the commercial corridor to the east and west of Highway 101. Due to the evolving nature of development in the area, the Airport is surrounded by a wide variety of land uses ranging from agricultural lands to office and residential uses. The following discussion, which describes land uses in the vicinity of the Airport, is based on a field survey completed in April, 2006. Existing land uses are illustrated in Figure 2.

a. Areas to the North. Because of its proximity to urbanizing portions of the Town of Windsor, the area to the north of the Airport has experienced a high level of development in recent years. However, parcels immediately to the north of the Airport (south of Sanders Road), which are within proposed future Airport boundaries, generally remain rural residential.

(1) Lands Between Redwood Creek and Sanders Road. The parcels immediately to the south of Sanders Road and north of Redwood Creek contain agricultural and rural residential uses. The agricultural uses on these parcels consist mostly of non-irrigated grazing. The parcel south of the intersection of Sanders Road and Windsor Road currently contains an abandoned orchard; scattered fruit trees were also observed east of this parcel, possibly indicating the previous existence of an orchard on land that is currently used for grazing or pasture. A small lake and several single family residential units are also located south of Sanders Road.

(2) Lands Between Sanders Road and Shiloh Road. Moving north, away from the Airport, the land between Sanders Road and Shiloh Road consists mostly of irrigated pastureland and single-family residential units. Grazing sheep and cows were observed during the field visit. In addition, a vineyard is located immediately adjacent to the north side of Sanders Road.

b. Lands North of Shiloh Road. Shiloh Road represents the southern limits of the Town of Windsor; thus land uses north of Shiloh Road are generally more intensive than land uses to the south. Land uses north of Shiloh Road consist of the Shiloh Cemetery (at the northeast quadrant of the Shiloh Road/Windsor Road intersection), Windsor Golf Club and open space uses to the east of the cemetery, and a residential subdivision at the northwest quadrant of the Skylane Boulevard and Shiloh Road intersection.

c. Areas to the West. Areas to the west of the Airport consist of agricultural uses with localized areas of rural residential or low density residential uses. Vineyards are located immediately north of Redwood Creek to the west of Windsor Road, and to the west of Slusser Road, north of the intersection of Slusser Road and Laughlin Road. Other properties are used mainly for grazing. In addition, eucalyptus woodland is located within the northwest quadrant of Slusser Road and Laughlin Road. Residential uses are largely clustered in the vicinity of Silk Road, which extends to the west from Windsor Road.

d. Areas to the South. The area located south of the Airport boundary and north of Mark West Creek is dominated by viticultural uses, including vineyards and structures associated with wine production, storage, and marketing. La Crema Winery (owned by Kendall-Jackson), a winemaking facility that specializes in Pinot Noir and Chardonnay varietals, is located south of Laughlin Road. A small vineyard is also located north of Laughlin Road (and west of North Laughlin Road), immediately adjacent to Airport property.

e. Areas to the East. Land uses to the east of the Airport are dramatically different from those to the west, reflecting both County land use designations, and development pressures emanating from the Highway 101 corridor. South of Copperhill Parkway and east of North Laughlin Road, land uses are transitioning from undeveloped parcels to industrial and office uses. Office uses are prevalent in the area north of Copperhill Parkway. Other land uses east of the Airport include a plant nursery managed by Sonoma County Jail Industries, which is located adjacent to Aviation Boulevard; and the Santa Rosa Junior College Department of Public Safety, which is located immediately west of Skylane Boulevard. In addition, wastewater retention ponds managed by the Sonoma County Water Agency are located immediately to the northeast of the Airport. Other notable uses further to the east of the Airport, especially in the vicinity of Highway 101, are business and industrial (both light and heavy) parks. This area is host to a relatively high concentration of biotechnology and telecommunications firms.

3. Land Use Trends in the Vicinity of the Airport

During the period extending from 2005 to 2015, the Association of Bay Area Governments (ABAG) anticipates that the Town of Windsor will experience a total population gain of 14 percent and a 43 percent increase in jobs (the second highest projected rate for population growth and the third highest projected rate of job growth in Sonoma County).² Santa Rosa is projected to experience a 10 percent increase in population and a 25 percent increase in jobs during this same period. It is likely that these growth rates, which have been relatively high for the last 20 years, will continue to have significant implications for land use in the vicinity of the Airport. In addition, as population has increased in the Windsor/Santa Rosa area of the County, there has been greater pressure from

² Association of Bay Area Governments (ABAG), 2005. *Projections 2005: Forecasts for the San Francisco Bay Area to the Year 2030*. December.



LSA

FIGURE 2



Charles M. Schulz
Sonoma County Airport Master Plan Update
Environmental Baseline Data Report
Surrounding Land Uses

municipalities, the County, and the public to preserve existing open space and agricultural lands. Three major land use trends or developments in the vicinity of the Airport are described below.

a. Conversion of Farmland and Forest Land Into Vineyards. In 1988, grapes surpassed apples as the highest grossing crop in Sonoma County. Since then, large amounts of agricultural land in the County have been converted to viticultural uses. New vineyard development typically takes place on undeveloped forest land and on land previously used for orchards or grazing. This trend is evident to the south and west of the Airport, where, over the last 20 years, vineyards have replaced grazing lands as the predominant agricultural use. Even though a recent (2006) County-wide timberland conversion ordinance, low wine grape prices, high land prices, and a water shortage have dampened demand for new vineyard land, wine grapes will continue to be an important crop in Sonoma County.

b. Residential/Resort Development. Trendwest Resorts recently constructed an 11-acre resort on Shiloh Road, to the east of the Windsor Golf Club. The WorldMark Sonoma County Resort consists of 228 condominiums, a lodge, pools, spas, and a sports center. The resort exemplifies a larger trend in Sonoma County, in which second home and resort developments have increased over the last 10 years. In addition, a three-story 232 unit apartment building has been constructed for 830 Airport Boulevard, a site approximately 1 mile east of the Airport. The project includes 47 affordable housing units. The Mitigated Negative Declaration for the project was adopted by the Sonoma County Board of Supervisors on April 8, 2003.

The Sonoma County Housing Element promotes revision of the existing Zoning Ordinance to allow for additional residential development in areas designated for industrial and commercial uses, such as those east of the Airport.

c. Shiloh Road Village Vision Plan. The Shiloh Road Village Vision Plan (Plan) is a conceptual plan for a mixed-use development on Shiloh Road, immediately east of Highway 101. The Plan, which was approved by the Windsor Town Council on August 7, 2002, encompasses a 62-acre area approximately 2 miles to the east of the Airport. The purpose of the Plan is to establish a traditional neighborhood at the southern boundary of Windsor that precludes the development of piecemeal strip development along the Shiloh Road corridor. The Plan incorporates New Urbanist principles, such as narrow grid pattern streets, a transportation system oriented around bike and pedestrian access, a diversity of housing types and land uses, a neighborhood commercial center with apartments above first-story retail establishments, and the integration of public space into the neighborhood fabric. Development of the Plan is dependent upon private financing and redevelopment agency funds.

4. Regulatory Policy and Program Framework

The following section describes State, County, and local land use plans, programs, and policies that affect land use decisions within and in the vicinity of the Airport. A discussion of farmland protection programs is followed by a description of County and municipal land use policies.

a. California Farmland Mapping and Monitoring Program. The State Farmland Mapping and Monitoring Program (FMMP) was established in 1982 in order to initiate a comprehensive mapping of State farmland. The intent of the FMMP is to provide decision makers with information regarding State agricultural resources, including data on existing farmland, and farmland development trends. The FMMP compiles maps depicting important farmland, based on United States Department of Agriculture soil surveys and other physical data, such as climate, growing season, and water supply.

(1) FMMP Categories. The FMMP divides land into seven categories, each of which is described below.

- *Prime Farmland.* Prime Farmland includes farmland with the best combination of physical and chemical features able to sustain long term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. In order to be classified as Prime Farmland, land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- *Farmland of Statewide Importance.* Farmland of Statewide Importance consists of farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. To be classified as Farmland of Statewide Importance, land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- *Unique Farmland.* Unique Farmland consists of farmland of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land in this category must have been cropped at some time during the 4 years prior to the mapping date.
- *Farmland of Local Importance.* Farmland of Local Importance is classified as land of importance to the local agricultural economy, as determined by each county's board of supervisors and a local advisory committee. Sonoma County Farmland of local importance is defined as: "The hayland producing areas of the Santa Rosa Plains, Petaluma Valley, and Tubbs Island Naval Reservation." Additional areas also include those lands which are classified as having the capability for producing locally important crops such as grapes, corn, etc., but may not be planted at the present time. Examples of these areas include the coastal lands from Fort Ross to Stewarts Point, areas surrounding Bloomfield, Two Rock, Chileno Valley, and areas of Sonoma Valley in the vicinity of Big Bend, Vineburg, and Schellville."
- *Grazing Land.* Grazing Land consists of land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.
- *Urban and Built-Up Land.* This mapping category includes land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- *Other Land.* Other Land includes land not included in any other mapping category. Common examples include of "other land" include that used for low density rural development; brush, timber, wetland, and riparian areas not suitable for livestock grazing; vacant and nonagricultural land surrounded on all sides by urban development; confined livestock, poultry or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres.

(2) Farmland in the Vicinity of the Airport. The diversity of farmland types surrounding the Airport is indicative of the Russian River Valley's predominance as an important agricultural region that produces a wide range of crops. Land to the north of the Airport includes Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Urban or

Built-Up Land. Land to the east of the Airport, which predominantly contains commercial uses, is classified as Urban and Built-Up Land. Land to the south of the Airport consists of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Urban and Built-Up Land. Land to the west of the Airport, which contains rural residential and agricultural uses, includes mostly Urban and Built-Up Land and Farmland of Local Importance.

The FMMP map of important farmland for the areas surrounding the Airport indicates that Farmland of Statewide Importance and Prime Farmland is located immediately to the north of Runways 1-19 and 14-32. Farmland of Statewide Importance is located immediately to the south of Runway 1-19.

In addition, the land in between the two airport runways and immediately to the west of Runway 1-19 is classified as Unique Farmland.

b. Williamson Act. The California Land Conservation Act of 1965 (Williamson Act) was passed by the Legislature in response to rapidly increasing agricultural land prices (and, by extension, property taxes) that were making it difficult for many farmers to remain in agriculture, along with a concern that prime agricultural land and open space was being irreplaceably lost to urban sprawl. The Williamson Act allows counties to establish “agricultural preserves” on commercial agricultural land, which then allows land owners to sign a contract with the County, restricting the use of their land to agricultural or open space uses for the following 10 years. In addition, State law requires that all lands within an agricultural preserve be zoned to prevent land uses that are incompatible with agricultural uses.³

In return for these development restrictions, land under contract is appraised by the County Assessor for its agricultural productivity rather than its market value, thereby reducing the land’s associated property taxes. In order to encourage the maintenance of agricultural easements, Williamson Act contracts feature automatic extension or renewal clauses that, at the end of each year a property is under contract, add an additional year to the contract, so that at all times there is a 10-year term of restriction on land development.

(1) Types of Contracts. Sonoma County offers contracts in two types of agricultural preserves: Type A-1 and Type A-2. The Type A-1 agricultural preserve is intended to protect agricultural lands that are intensively managed, such as vineyards, orchards, and irrigated pasture lands. For lands to be placed in a Type A-1 preserve, they must meet certain thresholds set by the County, such as minimum soil quality, livestock carrying capacity, and crop value. The Type A-2 agricultural preserve is most often used for less-intensively managed lands that promote the open space objectives maintained by the County. Lands in the Type A-2 preserves include properties with managed wetland areas, salt ponds, and wildlife habitat, in addition to areas within scenic highway corridors.

(2) Cancellation of Contract. The Williamson Act allows land to be withdrawn from a contract in two ways. First, a property owner may issue a notice of non-renewal. The notice of non-renewal halts the contract’s automatic renewal so that the contract expires over the next 10 years. During the 10-year phase-out period, land development restrictions remain in place and the property’s

³ Sonoma County Permit and Resource Management Department, No Date. “Williamson Act in Sonoma County.”

tax assessment rises until it reaches full market value at the end of 10 years. A request for non-renewal must be granted by the County.

The second method of withdrawing land from a Williamson Act contract is for the property owner to request immediate cancellation of the contract. However, a contract may only be canceled if the County Board of Supervisors finds that cancellation of the contract is consistent with the purposes of the Williamson Act and is in the public interest. Government Code 51282 states: "The existence of any opportunity for another use of the land involved shall not be sufficient reason for the cancellation of the contract. A potential alternative use of the land may be considered only if there is no proximate, non-contracted land suitable for the use to which it is proposed the contracted land be put." If land is withdrawn from a Williamson Act contract and the property owner wishes to use it for uses other than agriculture, the property owner must request that the County hold a public hearing and remove the land from agricultural preserve status.

(3) Contract Land in the Vicinity of the Airport. The Williamson Act is a popular method of preserving agricultural land in Sonoma County. Currently, approximately 57 percent of agricultural land in Sonoma County is under Williamson Act contract (283,000 acres out of a total of almost 500,000 acres of agricultural land).⁴ The increasing popularity of Williamson Act contracts is evident in the vicinity of the Airport, many where intensively-farmed lands, especially land associated with grape production, are under Williamson Act contracts. The rich, highly-productive lands immediately south of the Airport are predominantly under Williamson Act contracts.

Large parcels of agricultural land to the west of Windsor Road are also under contract, including some large vineyard properties. No lands east of Windsor Road and south of Shiloh Road are under Williamson Act contract. As might be expected due to increasing urbanization, lands immediately east of the Airport are also not under Williamson Act contract.

c. Acquisition Plan 2000. The Acquisition Plan 2000 (Acquisition Plan) is a science-based conservation plan that directs the Sonoma County Agricultural Preservation and Open Space District's land conservation program and identifies high-priority land for acquisition. The District was created in 1990 to implement the Agricultural Resources and Open Space Elements of the 1989 Sonoma County General Plan and to protect open space and farmland throughout the County that is threatened with development. Since 1990, the District has protected over 68,785 acres throughout the County.⁵ Typically, the District uses conservation easements to preserve land. Conservation easements operate like Williamson Act contracts in that they comprise legally binding agreements by which landowners voluntarily limit their development rights in exchange for tax benefits. However, unlike a Williamson Act Contract, a conservation easement is automatically held in perpetuity; in effect, the District purchases the development rights from the landowner so that the land cannot be developed. Although not used as frequently as conservation easements, the District also acquires land outright in fee simple. The Acquisition Plan stipulates that its priorities are to be revisited every five years; an updated plan is currently being prepared which will incorporate new information and public input.

⁴ Department of Conservation, 2002. California Department of Conservation, Division of Land Resource Protection. Website: www.conservation.ca.gov.

⁵ Sonoma County Agricultural Preservation and Open Space District, 2006. *Sonoma Open Space*. Website: <http://www.sonomaopenspace.org/index.asp>.

The Acquisition Plan lists four land use categories that encompass all land proposed for acquisition in the County: agriculture; greenbelts; natural resources; and recreation. Descriptions of these acquisition categories and proposed acquisition areas that occur in the vicinity of the Airport are provided below. No conservation easements are located in the immediate vicinity of the Airport.

(1) Agriculture. Agriculture lands include working landscapes that provide separators between towns and cities, and the highly-productive coastal grasslands that extend from Bodega Bay to the Marin County Line and east to Highways 116 and 101. No lands designated for Agriculture are located in the vicinity of the Airport.

(2) Greenbelts. Greenbelts include a variety of lands, including highly visible scenic open space and agricultural areas, open space between urban areas, and prominent viewsheds. The Acquisition Plan designates two types of greenbelts: "Priority Greenbelts" and "Expanded Greenbelts." Priority Greenbelts are first-priority land acquisitions for the County that are typically in areas vulnerable to urbanization or lands that have high biological and/or scenic values. Expanded Greenbelts are open space lands that provide a 1-mile buffer beyond cities and highways and serve to preserve rural character. Rural lands surrounding the northern portion of the Airport to the east, north, and west are designated Expanded Greenbelts in the Acquisition Plan.

(3) Natural Resources. Areas designated for natural resource acquisition include lands with significant ecosystem function, watershed value, habitat value, or the presence of protected species. Oak woodlands, Coast Range forests, riparian and wetlands areas, and areas with high biodiversity are designated as priority natural resources acquisition areas. Areas of Redwood Creek and Mark West Creek, north and south of the Airport, respectively, are designated priority riparian corridors. Mark West Creek is designated as harboring coho and steelhead salmon. Scattered areas around the Airport are designated as priority oak woodlands. In addition, the Airport is designated as containing threatened and endangered wetland species; areas immediately to the north of Redwood Creek are designated as containing both threatened and endangered wetland species and threatened and endangered terrestrial species.

(4) Recreation. Recreation lands include areas designated for future park development or other public recreational opportunities, such as trails. Lands closest to the Airport that are designated for acquisition for recreational uses include areas near the Highway 101 corridor and lands west of the Town of Windsor.

d. Sonoma County General Plan. The Sonoma County General Plan contains the following policies which are relevant to land use issues in and around the Airport:

- **Policy AT-1d:** No object or structure shall be permitted to be erected which, because of height or other factors, would result in an increase in the minimum ceiling or visibility criteria for an existing or proposed instrument approach procedure.
- **Policy AT-1e:** An object or structure which would penetrate a horizontal or conical surface as defined by the ALUC, and would be 35 feet or less in height above the ground (i.e., is within the height limits prescribed for most Sonoma County zoning districts) shall be considered conditionally acceptable even if it exceeds the prescribed height limit. Appropriate marking and lighting may be conditions for acceptability.
- **Policy AT-1j:** The county of Sonoma or other appropriate agency may acquire by negotiated purchase fee title interest or partial interests, such as conservation or avigation easements, in real property in order to protect the approach zone at the Sonoma County Airport.

- Policy AT-1i: When allowed by law, aviation easements may be required as a condition of approval of discretionary planning permits for parcels within the ALUC referral area
- Policy AT-3e: The County of Sonoma shall require that, prior to initiation or expansion at Sonoma County Airport of any regularly scheduled commercial passenger service, the applicable air carrier shall enter into an appropriate lease or operating agreement with the County. Such leases or agreements shall conform to all applicable policy directives of the Air Transportation Element, including those pertaining to restrictions on permissible aircraft noise levels. The County shall, in negotiating leases or agreements, encourage that aircraft types with quieter noise levels be utilized. To the extent allowed by law, the County shall require that new leases or other operating agreements with commercial air carriers be limited solely to quieter "Stage 3" aircraft. Prior to its execution, any proposed lease or operating agreement shall be reviewed for consistency with the Air Transportation Element and shall be reviewed pursuant to the California Environmental Quality Act and the implementing ordinance of the County of Sonoma to determine whether the project is exempt from CEQA, is covered by the EIR accompanying this element, or requires the adoption or certification of an additional environmental document.
- Policy AT-6b: Permissible non-aviation and accessory uses on county-owned lands include commercial and industrial uses, except that transient lodging and similar uses shall not be allowed.
- Policy AT-6c: Lands designated or acquired for approach protection purposes shall not be utilized for commercial or industrial purposes and shall not be extensively developed with structures of any type.
- Policy AT-6d: Appropriate uses of lands designated and/or acquired for approach protection include agriculture, outdoor recreation, and similar low-intensity uses, including spray irrigation with treated effluent, provided that such uses do not result in a significant increase in bird populations at a level which would give rise to a safety problem.

B. AIR QUALITY

The Sonoma County Airport is located within the San Francisco Bay Air Basin and is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD) and the California Air Resources Board (CARB). This section describes the existing air quality at and within the vicinity of the Sonoma County Airport using methodologies and assumptions recommended in the air quality handbook published by the Federal Aviation Administration (FAA)⁶ and the air quality impact assessment guidelines of the Bay Area Air Quality Management District (BAAQMD).⁷

1. Air Pollution Climatology

The Airport is located at the northwestern end of the Cotati Valley, one of three sub-regional air basins in Sonoma County. The Cotati Valley, in conjunction with the Petaluma Valley to the south, creates a wide basin stretching from Santa Rosa to San Pablo Bay. The basin is bounded by the Sonoma Mountains on the east and a series of low hills on the west. Wind patterns in the basin, characterized by northward air currents moving into Cotati Valley, are strongly influenced by the Petaluma Gap, which is a long stretch of low-elevation California Coast Range Mountains between the Pacific Coast and Petaluma Valley.

The amount of a given pollutant in the atmosphere is determined by the amount of pollutant released in the air basin and the atmosphere's ability to transport and dilute the pollutant. The major determinants of transport and dilution are wind, atmospheric stability, terrain, and for photochemical pollutants, sunshine.

⁶ Federal Aviation Administration, 1997. Air Quality procedures for Civilian Airports and Air Force Bases. April.

⁷ Bay Area Air Quality Management District, 1996. *BAAQMD CEQA Guidelines*.

Two key meteorological factors affect air quality in the Airport vicinity: wind and temperature. Winds affect the direction of transport of any air pollution emissions; they also control the volume of air into which pollution is mixed in a given period of time. While winds govern horizontal mixing processes, temperature inversions determine the vertical mixing depth of air pollutants.

The northward path of wind contributes to Santa Rosa's prevailing winds from the south and southeast. When the ocean breeze is weak, strong winds from the east can predominate, carrying pollutants from the Central Valley and the Carquinez Strait. During these periods, up valley flows can carry the polluted air as far north as Santa Rosa and the Airport.

Pollutants can be diluted by mixing in the atmosphere both vertically and horizontally. Vertical mixing and dilution of pollutants are often suppressed by inversion conditions, when a warm layer of air traps cooler air close to the surface. During the summer, inversions are generally elevated above ground level, but are present over 90 percent of both the morning and afternoon hours. In winter, surface-based inversions dominate in the morning hours, but frequently dissipate by afternoon.

The Cotati Valley has potential for high pollution concentrations due to its lack of a direct connection to the sea, high population levels, and natural barriers for air flow at its northern and eastern ends. During the day, especially in summer, winds blow contaminants toward inland areas. As the air collects in inland valleys of the basin and undergoes photochemical transformations under abundant sunlight, it creates unhealthy levels of smog (mainly ozone).

In winter, periods of stagnant air can occur, especially between storms. Shallow radiation inversions are formed at night as cool air pools in low elevations while the air aloft remains warm. These inversions trap pollutants near intensive traffic sources, such as freeways, shopping centers, etc., and form localized violations of clean air standards called "hot spots." Although inversions are found during all seasons of the year, the summertime regional capping inversion and the localized winter radiation inversions are, by far, the most dominant.

2. Regulatory Context

The following section summarizes key air quality regulations that would be applicable to comprehensive planning of Airport facilities. The discussion starts with federal regulations and ends with State and local air quality requirements.

a. National Environmental Policy Act. The National Environmental Policy Act (NEPA), which was signed into law in 1969 (and has since been amended), establishes a broad national policy to protect the quality of the human environment. The fundamental purpose of NEPA is to ensure that environmental issues are given consideration in any decision undertaken by the federal government; specifically, federal agencies must assess and disclose the environmental impacts of proposed federal actions, including impacts to air quality. Federal actions subject to NEPA include grants, loans, contracts, leases, construction, research, rulemaking and regulatory actions, certifications, licensing, and permitting. The Council on Environmental Quality, which issues regulations pertaining to NEPA implementation, emphasizes the importance of integrating the NEPA process with early project planning.

b. Federal Clean Air Act. The Clean Air Act, first passed in 1967, provides the federal government with authority to establish air quality standards. Principal features of the Clean Air Act

include a comprehensive strategy to achieve and maintain National Ambient Air Quality Standards (NAAQS) for specified criteria pollutants (ozone, carbon monoxide, particulates, sulfur dioxide, nitrogen dioxide, and lead), reductions in mobile source emissions, and regulation of toxic air contaminants (TACs) and pollutants that cause ozone depletion and acid rain. The Clean Air Act is largely implemented by the states. Ambient air quality standards (discussed in more detail in the following section) are an important element in the national environmental regulatory structure, and many of the most publicized air quality issues in the public sphere relate to efforts on the part of municipalities and air basins to attain these standards. States must identify geographic areas, termed nonattainment areas, that do not meet the NAAQS (see discussion under California Clean Air Act, below). For nonattainment areas, States must develop a State Implementation Plan (SIP) that includes a variety of emission control measures intended to ensure attainment of air quality standards in the future. The 1990 amendments to the Clean Air Act (specifically, Section 176(c)(1)) require that federal actions conform to existing SIPs. The conformance requirement means that emission increases from an airport project should not exceed the emission forecast or budget included in a SIP for that airport.

c. United States Code 47106(c)(1)(B). This code (enacted as part of the 1982 Airport Act) requires that a grant application for an airport project involving the location of an airport, runway, or major runway extension not be approved unless the state in which the airport is located certifies that there is reasonable assurance that the project will be located, designed, constructed, and operated in compliance with applicable air quality (and water quality) standards.

d. California Clean Air Act. In 1988, California passed its own Clean Air Act, which requires air districts to designate attainment and nonattainment areas, and to develop air quality plans to meet State standards. In general, the State Clean Air Act requires the reduction of air pollutants by 5 percent or more per year or the implementation of “all feasible measures” to meet State air quality standards.

e. Bay Area Air Quality Management District and Local Regulations. The Bay Area Air Quality Management District (BAAQMD) is responsible for preparing regional air quality plans for the air basin encompassing the Airport. The Northern Sonoma County Air Pollution Control District has jurisdiction over air quality in portions of the County generally north and west of the Petaluma and Cotati valleys. The BAAQMD also has permitting authority over stationary sources of pollutants. The California Air Resources Board has jurisdiction over mobile sources of pollutants. In addition, the County occasionally enacts local air quality regulations, such as a 2002 ordinance prohibiting the installation of conventional fireplaces in new homes and remodels, and requirements that wood burning devices meet certain air quality standards.

f. Sonoma County General Plan. The following policies from the Sonoma County General Plan are relevant to air quality issues in and around the Airport.

- Policy RC-13a: Require that commercial and industrial development projects be designed to minimize air emissions. Reduce direct emissions by decreasing the need for space heating.
- Policy RC-13c: Refer projects to the local air quality districts for their review.
- Policy RC-13d: Review proposed changes in land use designations for potential deterioration of air quality and deny them unless they are consistent with the air quality levels projected in the general plan EIR.

3. Ambient Air Quality Standards.

Both the U.S. Environmental Protection Agency and the California Air Resources Board have established ambient air quality standards for common pollutants. These ambient air quality standards are established levels of contaminants intended to avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called “criteria” pollutants because the health and other effects of each pollutant are described in criteria documents.

The federal and State ambient air quality standards are summarized in Table 1 for important pollutants. The ambient standards were developed independently with differing purposes and methods, although both aim to prevent health-related effects. As a result, the federal and State standards differ in some cases. In general, the State standards are more stringent (particularly for ozone and PM₁₀).

Table 1: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	0.12 ppm ^a	0.09 ppm
	8-Hour		0.07 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.05 ppm	—
	1-Hour	—	0.25 ppm
Sulfur Dioxide	Annual	0.03 ppm	—
	24-Hour	0.14 ppm	0.05 ppm
	1-Hour	—	0.25 ppm
PM ₁₀	Annual	50 µg/m ³	20 µg/m ³
	24-Hour	150 µg/m ³	50 µg/m ³
PM _{2.5}	Annual	15 µg/m ³	12 µg/m ³
	24-Hour	65 µg/m ³	—

Notes: ppm = parts per million
µg/m³ = micrograms per cubic meter

^a Federal 8-hour standard was revoked in June 2005.

Source: California Air Resources Board, 2003, *Ambient Air Quality Standards*.

The U.S. Environmental Protection Agency established new national air quality standards for ground-level ozone and for fine particulate matter in 1997. The 1-hour ozone standard has been phased out in favor of the 8-hour standard of 0.08 ppm. Implementation of the 8-hour standard was delayed by litigation, but was determined to be valid and enforceable by the U.S. Supreme Court in February of 2001. The EPA determined the 1-hour standard was not needed to protect public health given the promulgation of the 8-hour standards, and on April 15, 2004 the federal 1-hour ozone standard was revoked, effective June 15, 2005.

In 1997 new national standards for fine Particulate Matter (diameter 2.5 microns or less) were adopted for 24-hour and annual averaging periods. The current PM₁₀ standards were to be retained, but the method and form for determining compliance with the standards were to be revised. The EPA designated areas not attaining the PM_{2.5} standards and became effective on April 5, 2005. The proposed rule for PM_{2.5} released on September 8, 2005 states that within three years, each State having a non-attainment status area must submit to EPA an attainment demonstration, adopted State regulations to reduce PM_{2.5} and its precursors, and other supporting information demonstrating that the area will attain the standards.

4. Current Air Quality

The BAAQMD monitors air quality at several locations within the San Francisco Bay Air Basin including a site located in Santa Rosa on 5th Street, which is the closest monitoring site to the Airport. Pollutant monitoring results for the years 2002 to 2004 (see Tables 2 and 3) at the Santa Rosa ambient air quality monitoring station indicate that air quality in this area has generally been good.

Table 2: Results from Santa Rosa Ambient Air Quality Monitoring and Exceeded Standards, 2002 to 2004

Year	Ozone			Carbon Monoxide		Nitrogen Dioxide		PM ₁₀		
	Max. 1-Hour (ppm)	National D-O-S	California D-O-S	Max. 1-Hour (ppm)	California D-O-S	Max. 1-Hour (pphm)	California D-O-S	Max. 24-Hour (µg/m ³)	National D-O-S	California D-O-S
2002	0.077	0	0	3.7	0	0.054	0	60.2	0	2
2003	0.096	0	1	3.1	0	0.055	0	34.2	0	0
2004	0.076	0	0	2.7	0	0.048	0	47.4	0	0

D-O-S = Days Over Standard

ppm = parts per million

µg/m³ = milligrams per cubic meter

Source: U.S. EPA and ARB, 2002 to 2004.

Table 3: Results from Santa Rosa Ambient Air Quality Monitoring and Exceeded Standards, 2002 to 2004

Year	Ozone		Carbon Monoxide		Sulfur Dioxide ^a		PM _{2.5}		
	Max. 8-Hour (pphm)	National D-O-S	Max. 8-Hour (ppm)	California D-O-S	Max. 24-Hour (ppm)	California D-O-S	Max. 24-Hour (µg/m ³)	National D-O-S	California D-O-S
2002	0.060	0	2.1	0	0.004	0	50.7	0	NA
2003	0.079	0	1.8	0	0.003	0	38.8	0	NA
2004	0.060	0	1.6	0	0.005	0	26.6	0	NA

^a Closest ambient air quality monitoring station for sulfur dioxide is located in the City of Vallejo at 304 Tuolumne Street.

D-O-S = Days Over Standard

ppm = parts per million

µg/m³ = milligrams per cubic meter

N/A = Not Applicable. No State Standard.

Source: U.S. EPA and ARB, 2002 to 2004.

Of the three pollutants known to occasionally exceed the State and federal standards in Santa Rosa, two are regional pollutants. Both ozone and PM₁₀ are considered regional pollutants in that concentrations are not determined by proximity to individual sources, but show a relative uniformity over a region. Thus, the data shown in Table 2 for ozone and PM₁₀ provide a good characterization of levels of these pollutants on the project site.

Carbon monoxide is a local pollutant (i.e., high concentrations are normally only found near sources). The major source of carbon monoxide—a colorless, odorless, poisonous gas—is automobile traffic (although aircraft also emit CO). Elevated concentrations, therefore, are usually only found near areas of high traffic volumes.

As indicated in the monitoring results, two violations of the State PM₁₀ standard were recorded in 2002 and no violation of the federal PM₁₀ or PM_{2.5} standards occurred during the 3-year period from 2002 to 2004. State 1-hour O₃ standards were exceeded once in 2003 at this monitoring station. Federal 8-hour O₃ standards have not been exceeded within the past 3 years. CO, SO₂, and NO₂ standards were not exceeded in this area during the 3-year period.

5. Attainment Status

The Bay Area has attained all federal standards with the exception of ozone. In June of 1998 the U.S. Environmental Protection Agency reclassified the Bay Area from “maintenance area” to “nonattainment area” for ozone, based on violations of the federal standards at several locations in the air basin. This reversed the air basin’s reclassification to a maintenance area for ozone in 1995. Reclassification required an update to the region’s federal air quality plan. In June 2004, the Bay Area was designated as a marginal non-attainment area of the national 8-hour ozone standard.

Under the California Clean Air Act, southern Sonoma County is a nonattainment area for ozone. The County is either attainment or unclassified for other pollutants. The California Clean Air Act requires local air pollution control districts to prepare air quality attainment plans. These plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods or if not, provide for adoption of “all feasible measures on an expeditious schedule.” The BAAQMD released the Draft Bay Area 2005 Ozone Strategy in September of 2005. The document reviews the progress the region has made in reducing ozone levels. It also describes current air quality conditions and outlines plans to further reduce Bay Area ozone levels in the future.

6. Airport-Related Air Pollutants.

Airports are associated with several different sources of air pollution, including aircraft machinery, ground support equipment (e.g., air conditioners, service equipment, vans), on-road vehicle trips generated by airport users, and stationary sources such as boilers, emergency generators, incinerators, and fire training facilities. Of these sources, aircraft and car trips are the most significant in terms of overall quantity, although other sources can also pose potential health risks. A significant consideration for aircraft emissions is that aircraft not only operate on the ground, but emit pollutants during their flight. Some aircraft emissions affect ground level pollutant concentrations due to atmospheric mixing. The FAA requires that pollutants released in the air that would be expected to affect ground-level air quality be accounted for during the air emissions inventory. Similarly, airports are required to account for the *total* emissions of ground access vehicles, meaning the emissions generated from the time a vehicle is started at its point of origin, arrives at the airport, departs the airport, and reaches its point of destination. An emissions inventory would be required for the airport when the impacts of any master plan-related improvements are being analyzed.

C. WATER QUALITY

This section describes existing water quality conditions and considerations in and around the Airport. It is based on a review of published materials and an investigation of key hydrologic features in the vicinity of the Airport.

1. Hydrologic Setting

Figure 3 shows the hydrologic conditions in and around the airport. The airport is generally flat with variously sized depressions, swales, and ditches, some of which accumulate water during the rainy season. Much of this rain water is runoff from impervious surfaces at the Airport. The area supports seasonal wetlands and freshwater marsh, including northern hardpan vernal pools. The majority of seasonal wetlands within the Airport are located in the Infield between the runways and in a 3,000-

foot by 300-foot strip east of and parallel to Runway 14-32 and in preserve areas.⁸ A few vernal swales and pools are also found near the south end of Runway 14-32. These features appear to either be remnants of historic wetlands in the area or were created inadvertently when Airport features were constructed.

Redwood Creek is a seasonal to perennial creek that runs along the northern boundary of the Airport. It originates approximately ¼-mile to the west of Highway 101 and flows west for slightly more than 1 mile until it converges with Airport Creek to the south. Redwood Creek continues across the northern edge of the Airport and eventually joins Windsor Creek approximately 1.2 miles west of the Redwood Creek/Airport Creek confluence. Windsor Creek flows into Mark West Creek approximately 1.5 miles southwest of the Airport.

Mark West Creek is a perennial stream that occurs south of the Airport. It originates in the Sonoma Hills east of Highway 101 and flows westward, where it joins the Russian River approximately 7 miles west of Highway 101.

The Airport is located in the Mark West Creek sub-basin of Russian River watershed. A watershed is an area that is tributary to or drains to a particular river or creek system. The Russian River watershed comprises approximately 1,485 square miles and occupies much of Mendocino and Sonoma Counties. The sub-basin comprises an area of approximately 83 square miles, including the Town of Windsor and northern portions of Santa Rosa. Low gradients in the lower reaches of creeks in the sub-basin, including Mark West Creek, cause water from the Russian River to backup and flood some portions of the western sub-basin during high-intensity, short-duration storm events.

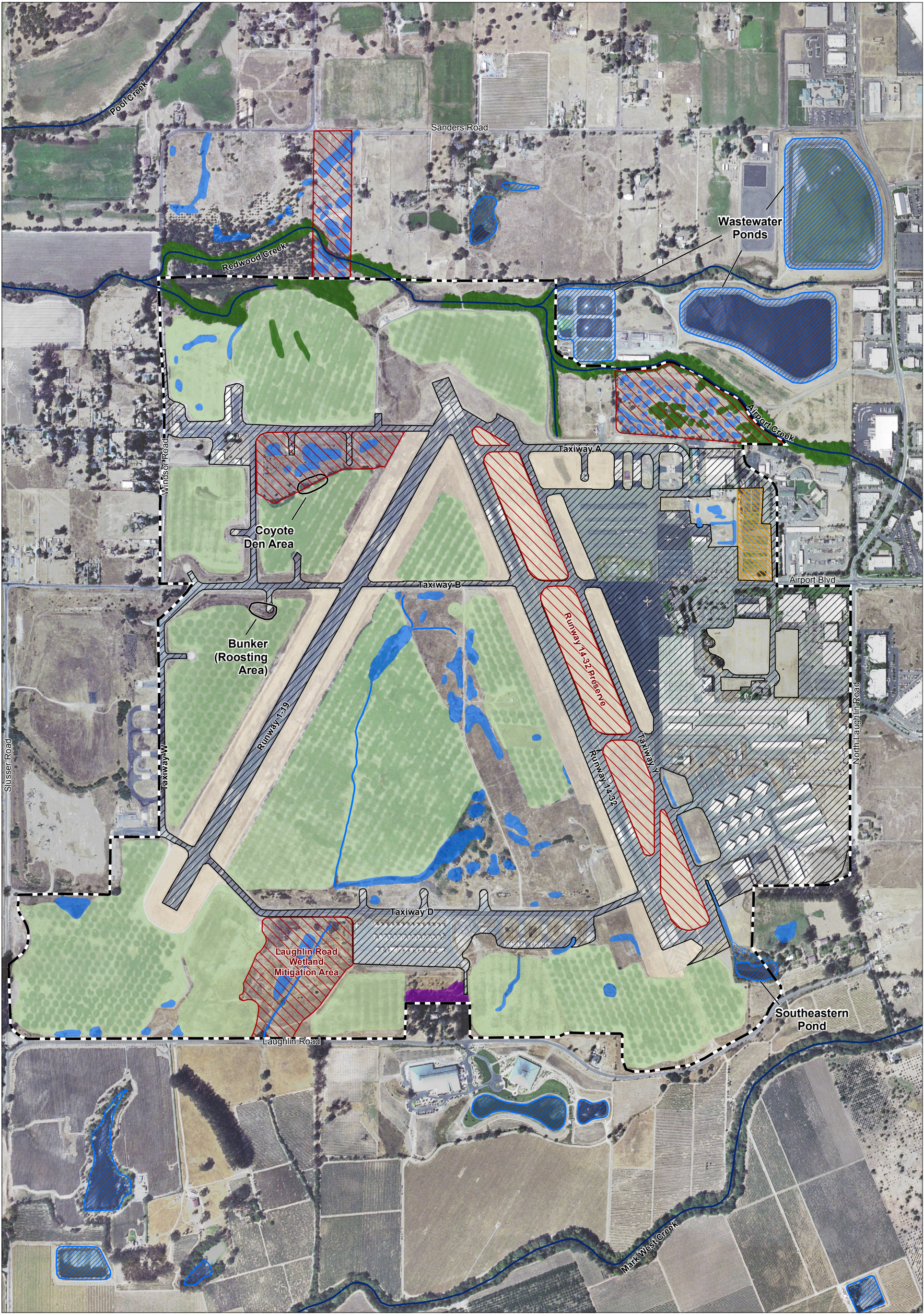
Around the Airport and the rest of Santa Rosa, the collection, diversion, and controlling of surface water runoff occurs through an integrated storm drainage system of gutters, underground pipelines, ditches, and water channels. The collected storm water is conveyed to discharge points at the Laguna de Santa Rosa (Laguna), which is a stream and a freshwater wetland area located west, and downstream, of the Santa Rosa urban area that ultimately drains into the Russian River and west to the Pacific Ocean. To minimize potential downstream erosion and flooding impacts, water detention facilities are incorporated into the storm drainage system to temporarily hold storm water runoff before it is released. Over time, the City's storm drainage system has been improved and expanded as City growth and intensification has occurred.

2. Water Quality

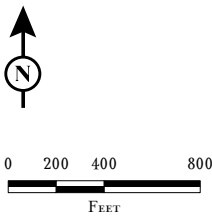
The quality of surface water and groundwater in the vicinity of the Airport is affected by past and current land uses within the watershed and the composition of local geologic materials.

The quality of surface water bodies in the Russian River watershed has been monitored since the early 1970s. The levels of total nitrate, total phosphate, dissolved oxygen, hydrogen ion concentration, and toxic chemical concentration are generally in compliance with water quality objectives. Elevated water quality constituents in the main stem of the Russian River are associated with total dissolved solids, turbidity, and high bacteria concentrations. Recreational uses and leaks and overflows from septic tanks also contribute fecal coliform bacteria to the river. The North Coast

⁸ Several biological preserves are located throughout the Airport site and vicinity. These preserves consist of permanently protected habitat for listed species and development is not permitted in these areas.



LSA



- | | | |
|------------------|--|---|
| PROJECT AREA | SEASONAL WETLANDS
(INCLUDING VERNAL POOLS AND SWALES) | AGRICULTURE |
| PERENNIAL CREEKS | IRRIGATED RUDERAL - CULTIVATED | DEVELOPED |
| PRESERVES | MOWED AREAS | PERENNIAL PONDS |
| | RIPARIAN WOODLAND / VALLEY OAKS | FRESHWATER MARSH |
| | BLUE GUM | NON-NATIVE GRASSLAND /
RUDERAL GRASSLAND |

FIGURE 3

Charles M. Schulz
Sonoma County Airport
Biological Assessment

Site Features, Habitats and
Vegetation Communities

Regional Water Quality Control Board (RWQCB) has classified the entire Russian River watershed as an impaired water body due to excess sedimentation and siltation resulting from current and historic grazing, agriculture, logging, road construction, and habitat modification.

Water quality in surface and groundwater bodies is regulated by the State Water Resources Control Board and Regional Water Quality Control Boards. The study area is under the jurisdiction of the North Coast RWQCB, which is responsible for implementation of State and federal water quality protection guidelines in the region. The RWQCB implements the Water Quality Control Plan (Basin Plan), a master policy document for managing water quality issues in the region. The Basin Plan establishes beneficial water uses for waterways and water bodies within the region.

The 1982 Airport Act requires that Airport Improvement Program applications for projects involving airport location, runway location, or a major runway extension not be approved unless the state in which the airport is located certifies that there is “reasonable assurance” that the project would be designed, constructed, and operated in compliance with applicable water quality (and air quality) standards.

a. Stormwater Quality. Runoff water quality is regulated by the National Pollutant Discharge Elimination System (NPDES) Nonpoint Source Program (established through the federal Clean Water Act of 1977); the NPDES program objective is to control and reduce pollutants to water bodies from nonpoint discharges. Locally, the NPDES program is administered by the RWQCB. The RWQCB has conveyed responsibility for implementation of storm water regulations in the vicinity of the Airport to the City of Santa Rosa, the Town of Windsor, and Sonoma County. These jurisdictions maintain compliance with the NPDES permit and promote storm water pollution prevention.

Municipalities are required to obtain Municipal Separate Storm Sewer Systems (MS4) Permits which regulate storm water discharges. MS4 permits are issued by the RWQCB and are usually issued to a group of co-permittees encompassing an entire metropolitan area. Since Sonoma County has two major watersheds regulated by two RWQCBs (the North Coast and San Francisco Bay RWQCBs), it has two MS4 permits.

The municipal permit that encompasses the Airport is a Phase I MS4 Permit for municipalities serving more than 100,000 people in the County, and is administered by the North Coast RWQCB. The County is a co-permittee with the City of Santa Rosa and the Sonoma County Water Agency for the Phase I boundary, which includes the City of Santa Rosa and unincorporated areas near the cities of Healdsburg, Windsor, Santa Rosa, Rohnert Park, Cotati, and Sebastopol. The second municipal permit is a Phase II General MS4 Permit for municipalities serving between 10,000 and 100,000 people (including the unincorporated areas near the cities of Petaluma and Sonoma) and is administered by the San Francisco Bay RWQCB.

The MS4 permits require the discharger to develop and implement a Storm Water Management Program with the goal of reducing the discharge of pollutants to the maximum extent practicable. The County has developed a Storm Water Management Plan for each of the two MS4 Permits which specifies what Best Management Practices (BMPs) will be used to address certain program areas. The program areas include public education and outreach, illicit discharge detection and elimination, construction activities, post-construction storm water management, and good housekeeping for municipal operations.

b. Groundwater Quality. The Airport overlies the Santa Rosa Plain groundwater sub-basin. The Santa Rosa Plain sub-basin has one main water-bearing unit (Merced Formation) and several units with lower water-bearing capacities (Glen Ellen Formation and Alluvium).⁹ Alluvial deposits, which consist of consist of poorly sorted sand, gravel, silt, and clay, blanket most of the Santa Rosa Valley. Based on regional studies, the depth to first groundwater in the Airport vicinity ranges from near the surface (less the 5 feet below the ground surface (bgs)) to more than 20 feet bgs.¹⁰ Key groundwater issues in the sub-basin include a historic decline in groundwater levels in the southern portion of the sub-basin. However, water levels have stabilized in recent years. Because there are few groundwater monitoring wells in the County, little is known about changes in groundwater levels and groundwater quality. In select areas, groundwater has been contaminated by features like leaking underground storage tanks; however, groundwater quality problems are thought to be local in nature. Groundwater is minimally regulated in Sonoma County. There is no groundwater management ordinance, but a limited well ordinance accomplishes some of the same regulatory functions in specific geographic areas of the County.

3. Relevant Policies

The following policies from the City of Santa Rosa General Plan are relevant to water quality issues in and around the Airport:

- Policy PSF-I-1: Require dedication, improvement and maintenance of stormwater flow and retention areas as a condition of approval.
- Policy PSF-I-2: Require developers to cover the costs of drainage facilities needed for surface runoff generated as a result of new development.
- Policy PSF-I-3: Require erosion and sedimentation control measures to maintain an operational drainage system, preserve drainage capacity, and protect water quality.
- Policy PSF-I-4: Require measures to maintain and improve the storm drainage system, consistent with the Santa Rosa Waterways Plan, to preserve natural conditions of waterways and minimize paving of creek channels.
- Policy PSF-I-5: Cooperate with the Sonoma County Water Agency and the Northern California Regional Water Quality Control Board to conduct regular assessment of stormwater drainage facilities, to ensure that adequate drainage capacity is maintained throughout the system to accommodate increases in residential and commercial development.
- Policy NS-D-1: Ensure flood plain protection by retaining existing open areas and creating new open areas needed to retain stormwater, recharge aquifers, and prevent flooding. Creek beds that are dry most of the year provide flood retention needed for public safety.
- Policy NS-D-2: Maintain current flood hazard data, and coordinate with the Army Corps of Engineers, FEMA, Sonoma County Water Agency, and other responsible agencies to coordinate flood hazard analysis and management activities.
- Policy NS-D-3: Require that new development incorporate features into site drainage plans that would reduce impermeable surface area, increase surface water infiltration, and minimize surface water runoff during storm events. Such features may include: additional landscape areas; parking lots with bio-infiltration systems; permeable paving designs; and stormwater detention basins.
- Policy OSC-B-3: Require that new subdivisions, multifamily, and non-residential development abutting creek corridors are appropriately designed with respect to the creek. Development may orient toward the creek as an amenity, but adequate setbacks shall be used to ensure riparian habitat is protected.
- Policy OSC-B-4: Require that graded areas within new subdivisions be revegetated.

⁹ California Department of Water Resources, 2004. Groundwater Bulletin 118, February 27.

¹⁰ California Department of Water Resources, 1982. Evaluation of Ground Water Resources, Sonoma County, Volume 2: Santa Rosa Plain, Bulletin 118-4, September.

- Policy OSC-D-7: Rehabilitate existing channelized waterways, as feasible, to remove concrete linings and allow for a connection with the stream channel and the natural water table. Avoid creating additional channelized waterways, unless no other alternative is available to protect human health, safety, and welfare.
- Policy OSC-D-8: Restore channelized waterways to a more natural condition which allows for more natural hydraulic functioning, including development of meanders, pools, riffles, and other stream features. Restoration should also allow for growth of riparian vegetation which effectively stabilizes banks, screens pollutants from runoff entering the channel, enhances fisheries, and provides other opportunities for natural habitat restoration.
- Policy OSC-D-9: Ensure that construction adjacent to creek channels is sensitive to the natural environment. Ensure that natural topography and vegetation is preserved along the creek, and that construction activities do not disrupt or pollute the waterway.
- Policy OSC-D-12: New development should maintain an adequate setback from channelized waterways to recognize the 100-year flood elevation, and allow for stream corridor restoration. Setbacks identified in the Zoning Code should serve as minimum setbacks. Larger setbacks are encouraged in accordance with Restoration Concept Plans to meet restoration and enhancement goals.

D. HAZARDOUS MATERIALS

This hazardous materials section discusses current environmental concerns at the airport site and is based on agency record searches, a review of historic aerial photographs, and a field reconnaissance.

1. Site Conditions

Several hazardous wastes sites were identified in and around the Airport property. These are discussed below.

a. Records Review. Environmental Data Resources (EDR) conducted a comprehensive federal, State, and local environmental records search for the project site and properties within a 1-mile radius. The purpose of the database search was to identify potential environmental concerns or hazardous materials sites located within and adjacent to the Airport. The environmental records search identified several such locations within and in the vicinity of the Airport. These are shown in Figure 4 (site numbers correspond to site listings provided in the EDR report). Mapped sites within and immediately adjacent to the Airport property are described below.

(1) 6677 Windsor Road (Site 15). This site is located on Windsor Road, just south of Sanders Road, outside of existing Airport property; however, it is immediately adjacent to the Airport. The site is listed on HAZNET, which extracts data from the copies of hazardous waste manifests received each year by the Department of Toxic Substances Control (DTSC). The site contains asbestos-containing waste in addition to mixed oil.

(2) 1601 Sanders Road (Site 16). This site is located at the northern border of the Airport, outside of existing Airport property; however, the County wishes to acquire property in this area for future Airport use. This site is operated by Patin Vineyard Management and the site contains hydrocarbon solids (benzene, hexane, etc.). This site is listed in the Historical Underground Storage Tank Database (HIST UST). Two tanks were installed on the site in 1980 and contained unleaded and diesel fuel.

(3) 6300 Windsor Road (Site 17). This site is located at the northwestern corner of the Airport, at the bend in Windsor Road. The site is listed in the California Hazardous Material Incident

Report System, which contains information on reported hazardous material incidents (i.e., accidental releases or spills). The EDR report indicates that a waste oil spill potentially occurred in the roadway at this site; however, no further information is available.

(4) 5660 Skylane Boulevard (Site 18). This site is located adjacent to the northeastern boundary of Airport property. The site is occupied by Kendall-Jackson Wine Estates and contains unspecified organic liquid mixtures, adhesives, aqueous solutions with less than 10 percent waste, and latex waste. The site is listed on HAZNET.

(5) 5460 Skyline Boulevard (Site 23). This property is located at the eastern portion of the Airport property and is operated by Cal Sensors Inc. The site, which is listed on HAZNET, contains organic solids and laboratory waste chemicals.

(6) Figure 4: Hazardous Materials Sites 2260 Ordinance Road (Site 27). This site is located in the eastern portion of the Airport property and is used as a flood control maintenance yard for the Sonoma County Water Agency. This site is listed in the HIST UST. Two tanks were installed on the property in 1967 and both store diesel fuel.

(7) 2232 Airport Boulevard (Site 29). This site is located in the western portion of the Airport property and consists of the Santa Rosa Army Airfield. This site is an open military facility and contains liquids with halogenated organic compounds (waste oil). This site is listed under the DTSC Annual Workplan, which identifies known hazardous substances sites targeted for cleanup.

(8) 5199 Slusser Road (Site 36). This site is located at the eastern corner of the Airport, at the intersection of Slusser Road and Mark West State Road. This location consists of an Airport disposal site and is listed on the National Emissions Inventory.

(9) 5010 Flightline Drive (Site 40). This site is located on the eastern portion of Airport property, south of Airport Boulevard. The site operated by Mediplane Inc., and is listed on HAZNET. The site contains oxygenated solvents (i.e., acetone, butanol, ethyl acetate etc.), unspecified organic and liquid mixtures, aqueous solutions with less than 10 percent total organic residues, waste and mixed oils, and other organic solids.

(10) 3636 and 3650 North Laughlin Road (Site 44). This site is located at the eastern boundary of Airport property. The site is operated by Mag Media Limited and contains unspecified organic mixtures, unspecified solvent mixture waste, laboratory waste chemicals, and other inorganic solid waste.

(11) 5200 Slusser Road (Site 45). This site is located on the western portion of the Airport property, south of Site 36. This site is also listed as an Airport disposal site and is operated by the County of Sonoma Public Works Department. This information is listed on the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

b. Aerial Photograph Review. Construction of the Airport began in 1939. Aerial photographs of the Airport site and surroundings for the years 1952, 1965, 1974, 1982, 1993, and 1998 were provided by EDR and were reviewed for this report. Descriptions of these photos are provided below.

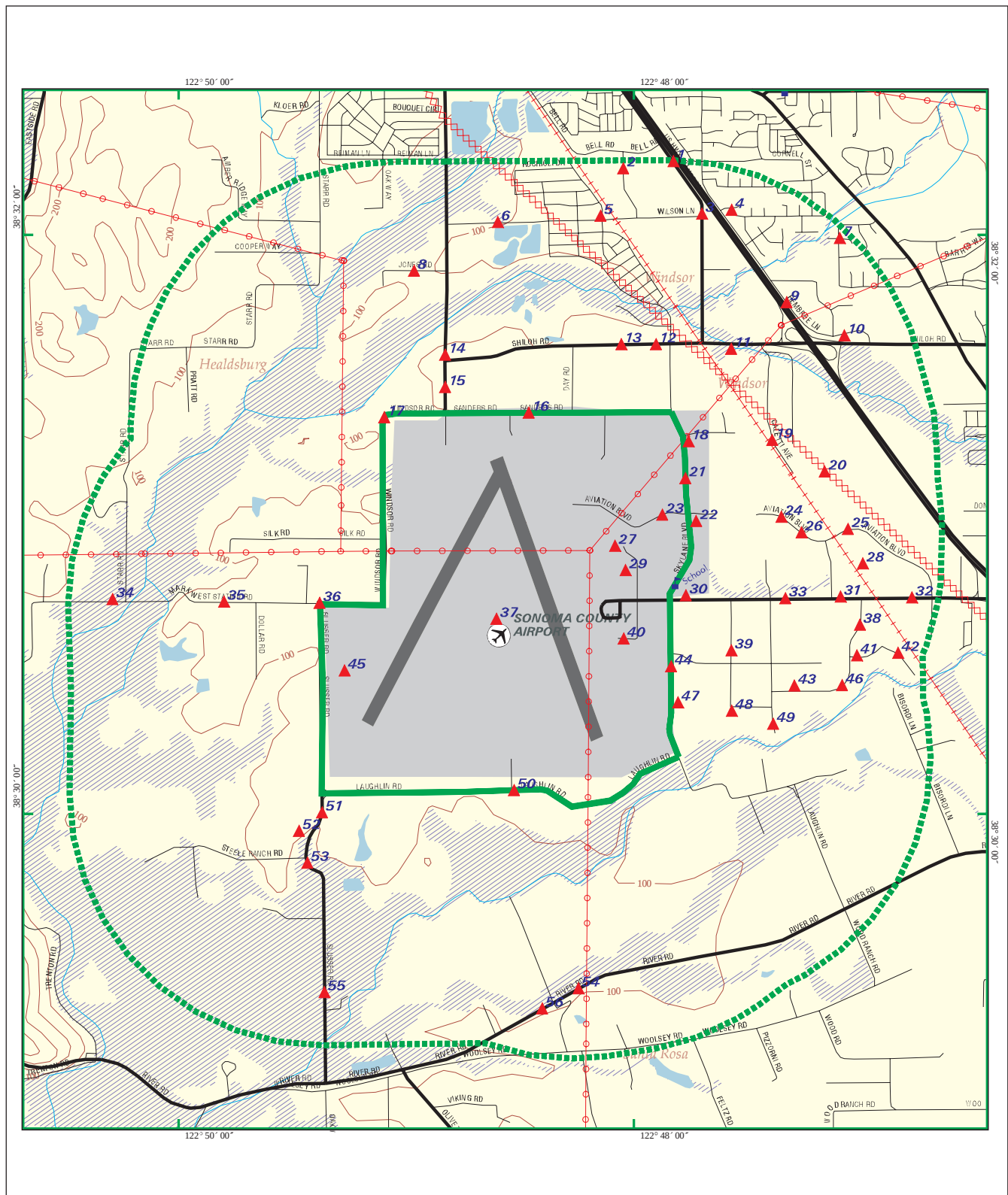
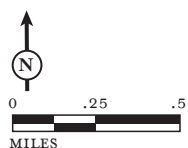


FIGURE 4

LSA



- | | | |
|--|---------------|-------------------------|
| ▲ Listed Sites | Waterways | Water |
| □ Earthquake Epicenters (Richter 5 or greater) | Railroads | Superfund Sites |
| Search Boundary | Contour Lines | Federal DOD Sites |
| ▲ Roads | Pipelines | Indian Reservations BIA |
| ▲ Major Roads | Powerlines | 100-Yr Flood Zones |
| | Fault Lines | |

Charles M. Schulz
Sonoma County Airport Master Plan Update
Environmental Baseline Data Report
Hazardous Materials Sites

SOURCE: ENVIRONMENTAL DATA RESOURCES, INC., 2006

I:\MHN431 sonoma airport\figures\Fig_4.ai (10/12/07)

(1) **1952 Photos.** The 1952 photos show the existing runway configuration at the Airport, although very little development exists on the eastern portion of the property at this time except the current aircraft outdoor storage area, with a few hangars. Surrounding land is largely undeveloped except for scattered rural residential development. The majority of surrounding lands, including the areas east of the Airport, appear to be used for agriculture, grazing, and open space uses. Hazardous materials concerns at this time would include those associated with Airport use (namely fuel storage and disposal) and agricultural use (e.g., application of pesticides and herbicides).

(2) **1965 Photos.** The 1965 photos also show a similar development pattern at the Airport as the 1952 photos.

(3) **1974 Photos.** The 1974 photos show new development in the eastern portion of the Airport property. New development on Airport property consists of hangars located on the aircraft storage lot, as well as new associated terminals and other structures to the north. Land use patterns to the east of the Airport remain largely the same as in the 1965 photos.

(4) **1982 Photos.** The 1982 photos show new development over the entire eastern portion of the Airport property. New hangars exist to the south and new commercial and service uses occur to the north. Land use patterns to the east of the Airport have begun to transition to outdoor storage and commercial uses. Hazardous materials concerns at this time include underground storage tanks and fuel leaks.

(5) **1993 Photos.** The 1993 photos show an increase in the intensity of development to the east of the Airport, although much of the Airport property remains the same as in the 1982 photos. A few parcels of largely undeveloped land separate the Airport from these uses. Wastewater treatment ponds to the northeast of the Airport have also been developed.

(6) **1998 Photos.** The 1998 photos show a similar land use pattern at the Airport, although with more aircraft storage and vehicle parking areas on the eastern portion of the site. Development to the east of the Airport is similar to that shown in 1993, with some commercial and office uses developing closer to the Airport.

2. Hazardous Materials Regulatory Agency Framework

In California, the US Environmental Protection Agency (US EPA) has granted most enforcement authority over federal hazardous materials regulations to the California Environmental Protection Agency (Cal/EPA). In Sonoma County, the Department of Emergency Services, Hazardous Materials Division (Sonoma County), has the responsibility for the County's Certified Unified Program Agency (CUPA) program (California Health and Safety Code Chapter 6.11), including hazardous materials business plans, hazardous waste generators, underground tank storage, accidental release prevention, and portions of the Uniform Fire Code that address hazardous materials.

In California, regional agencies are responsible for programs regulating emissions to the air, surface water, and groundwater. As discussed in the air quality and water quality sections of this report, respectively, the Bay Area Air Quality Management District (BAAQMD) has oversight over air emissions, and the North Coast Regional Water Quality Control Board (RWQCB) regulates discharges and releases to surface and groundwater.

Oversight for investigation and remediation of sites affected by hazardous materials releases may be performed by State agencies, such as the Cal/EPA Department of Toxic Substances Control (DTSC), regional agencies, such as RWQCB, or local agencies, such as Sonoma County Health Department - Environmental Health Division (Sonoma County).

Any business storing, using, and/or disposing of hazardous materials is required to comply with federal, State, and local requirements for managing hazardous materials. Depending on the precise types and quantities of hazardous materials used, stored, and disposed of from a site, these applicable hazardous materials requirements may include the preparation of, implementation of, and training in the following CUPA and Non-CUPA plans, programs, and permits.

a. CUPA Plans, Programs, and Permits. The following discussion summarizes four CUPA-related plans, programs, and permits that may be applicable to the Airport Master Plan.

(1) Hazardous Waste Generator Requirements. Facilities that generate more than 100 kilograms per month of hazardous waste, or more than 1 kilogram per month of acutely hazardous waste, must be registered in accordance with the Resource Conservation and Recovery Act (RCRA) (Title 42, U.S. Code, Sections 6901 et seq.).

(2) Aboveground (AST) and Underground Storage Tank (UST) Permits. Facilities must have permits to have on-site ASTs or USTs. Maintenance and implementation of hazardous materials plans, such as a Spill Prevention Control and Countermeasures (SPCC) Program, may be required due to the quantity and type of hazardous materials stored in the ASTs. A typical SPCC Program provides a detailed engineering analysis of the potential for release of toxic materials from oil-filled equipment, and describes the measures, such as secondary containment and emergency response, that would be implemented to minimize releases.

(3) Hazardous Materials Business Plan (Business Plan). Facilities that use, store, or handle hazardous materials in quantities greater than 500 pounds, 55 gallons, or 200 cubic feet are required to prepare a Business Plan and comply with Uniform Fire Code requirements for storage of hazardous materials. Business Plans contain facility maps, up-to-date inventories of all hazardous materials for each shop/area, product transfer areas, emergency response procedures, equipment, and a description of employee training to handle hazardous materials safely.

(4) Hazardous Material Release Response Plan (Contingency Plan). All facilities that generate hazardous waste must prepare a Contingency Plan. Contingency Plans identify the duties of the facility Emergency Coordinator, and the location of emergency equipment, and include reporting procedures for the facility Emergency Coordinator to follow after a hazardous materials incident.

b. Non-CUPA Plans, Programs, and Permits. The following discussion describes five non-CUPA plans that may be applicable to the Airport Master Plan.

(1) Injury and Illness Prevention Plan. The California General Industry Safety Order requires that all employers in California prepare and implement an Injury and Illness Prevention Plan (IIPP), which should contain a code of safe practice for each job category, methods for informing workers of hazards, and procedures for correcting identified hazards.

(2) Emergency Action Plan. The California General Industry Safety Order requires that all employers in California prepare and implement an Emergency Action Plan. The Emergency Action Plan designates employee responsibilities, evacuation procedures and routes, alarm systems, and training procedures in the event of a hazardous materials spill or other emergency.

(3) Fire Prevention Plan. The California General Industry Safety Order requires that all employers in California prepare and implement a Fire Prevention Plan. The Fire Prevention Plan specifies areas of potential hazard, persons responsible for maintenance of fire prevention equipment or systems, fire prevention housekeeping procedures, and fire hazard training procedures.

(4) Hazard Communication Plan. Facilities involved in the use, storage, and handling of hazardous materials are required to prepare a Hazard Communication Plan. The purpose of the Hazard Communication Plan is to provide instruction on safe handling practices for hazardous materials, ensure proper labeling of hazardous materials containers, and ensure employee access to Material Safety Data Sheets.

(5) Septic Systems. Permits for removal of sewage disposal systems are required by the Sonoma County Permit and Resource Management Department. At the Airport, the Experimental Aircraft Association maintains a septic system.

c. Worker Health and Safety Agency Regulations. Worker health and safety is regulated at the federal level by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA). OSHA requires that workers at hazardous waste sites, or those working with hazardous wastes encountered during excavation of contaminated soils, receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations (29 CFR 1910.120).

Worker health and safety in California is regulated by the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA). California standards for workers dealing with hazardous materials, including hazardous wastes, are contained in CCR Title 8 and include practices for all industries (General Industrial Safety Orders), and specific practices for construction, hazardous waste operation, and emergency response (CCR Title 8, Section 5192). Cal/OSHA conducts on-site evaluations and issues notices of violation to mandate implementation of necessary improvements to health and safety practices.

E. BIOLOGICAL RESOURCES

A biological assessment for the Sonoma County Airport was conducted as part of this report. The assessment is based on the previously prepared biological resources Executive Summary and the Wildlife Habitat Management Plan (WHMP) prepared for the Airport, and includes an evaluation of vegetation, wetlands, special status species and general habitat value in and around the Airport. The assessment also discusses the potential opportunities and constraints of these biological resources in the context of Airport planning. This section summarizes the findings of the biological assessment (included as Appendix A of this report). The Draft WHMP is included as Appendix B of this report.

1. Regulatory Context. Regulations that apply to biological resources within and in the vicinity of the Airport (i.e., the “study area”) are described below.

a. U.S. Fish and Wildlife Service (USFWS). USFWS has jurisdiction over species that are formally listed as threatened or endangered under the federal Endangered Species Act. The Endangered Species Act protects listed wildlife species from harm or “take.” The term “take” is broadly defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” An activity is defined as a “take” even if it is unintentional or accidental. An endangered plant or wildlife species is one that is considered in danger of becoming extinct throughout all, or a significant portion of its range. A threatened species is one that is likely to become endangered within the foreseeable future. In addition to endangered and threatened species, which are legally protected under the federal Endangered Species Act, the USFWS has a list of proposed and candidate species. Proposed species are those for which a proposed rule to list them as endangered or threatened has been published in the Federal Record. A candidate species is one for which the USFWS currently has enough information to support a proposal to list it as a threatened or endangered species. Proposed and candidate species are not afforded legal protection under the federal Endangered Species Act. However, project-related impacts to federally-listed, proposed, and candidate species or their habitats are considered “significant” under the *CEQA Guidelines* (discussed below).

b. California Department of Fish and Game. CDFG has jurisdiction over threatened or endangered species that are formally listed by the State under the California Endangered Species Act. The California Endangered Species Act is similar to the federal Endangered Species Act both in process and substance; it is intended to provide protection to threatened and endangered species in California. The California Endangered Species Act prohibits the “take” of any plant or animal listed or proposed as threatened, endangered, or rare (“rare” applies only to plants). The California Endangered Species Act does not supersede the federal Endangered Species Act, but operates in conjunction with it. Species may be listed as threatened or endangered under both acts (in which case the provisions of both State and federal laws would apply) or under only one act.

CDFG also maintains informal lists of “species of special concern.” These species are broadly defined as plants and wildlife that are of concern to CDFG because of population declines and restricted distributions, and/or they are associated with habitats that are declining in California. Project-related impacts to species on the State endangered or threatened lists and lists of species of special concern are considered “significant” under the *CEQA Guidelines* (discussed below). CDFG also exerts jurisdiction over the bed and banks of watercourses according to the provisions of Section 1602 of the Fish and Game Code. The CDFG requires a Streambed Alteration Permit for the fill or removal of any material from a natural drainage. The jurisdiction of CDFG extends to the top of the bank and often includes the outer edge of riparian vegetation canopy cover.

c. U.S. Army Corps of Engineers. Under Section 404 of the Clean Water Act, the Corps is responsible for regulating the discharge of fill material into waters of the U.S. The lateral limits of waters of the U.S. are defined in 33 Code of Federal Regulations (CFR) Part 328.3(a) and include streams that are tributary to navigable waters and their adjacent wetlands. Wetlands that are not adjacent to waters of the U.S. are termed “isolated wetlands” and are not subject to Corps jurisdiction.

In general, a Corps permit must be obtained before placing fill in wetlands or other waters of the U.S. The type of permit required depends on the amount of acreage and the purpose of the proposed fill, and is subject to discretion from the Corps. There are two categories of Corps permits: nationwide (general) permits and individual permits. To qualify for a nationwide permit, a project must demonstrate that it has no more than a minimal adverse effect on an aquatic ecosystem. The Corps typically interprets this condition to mean that there will be no net loss of either habitat acreage or habitat value. This usually results in the need to provide mitigation for project-related fill of any creek or wetland.

An individual permit is required where a nationwide permit is not applicable. The considerations affecting the Corps' decision to grant an individual permit include, but are not limited to, factors such as the size of affected wetlands or waters of the U.S., the biological or unique value of the area, or length of watercourse affected. Individual permits require review of the project by the public, evidence that wetland impacts have been avoided or minimized to the extent practicable, and provision of appropriate compensatory mitigation for unavoidable impacts

d. Regional Water Quality Control Board (RWQCB). Pursuant to Section 401 of the Clean Water Act, projects that apply for a Corps permit for discharge of dredge or fill material into wetlands or other waters of the U.S. and State must also obtain water quality certification from the RWQCB. This certification ensures that the project will uphold State water quality standards. Alternatively, the RWQCB may elect to notify an applicant that the State may issue Waste Discharge Requirements in lieu of a Section 401 certification for a project. Wetlands and waters determined to be isolated and not subject to Corps jurisdiction, may be regulated by the RWQCB under the Porter-Cologne Act as waters of the State. Fill of waters of the State requires issuance of a waste discharge permit. It is the policy of the State programs to have no net loss of wetlands.

e. CEQA Guidelines Section 15380. Although threatened and endangered species are protected by specific federal and State statutes, *CEQA Guidelines* Section 15380(b) provides that a species not listed on the federal or State list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in the federal Endangered Species Act and the section of the California Fish and Game Code dealing with rare or endangered species. Section 15380 (b) was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFG. Thus, CEQA provides a lead agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

f. California Native Plant Society (CNPS). CNPS, a non-governmental conservation organization, maintains lists of plants of special concern in California. A CNPS List 1A plant is a species, subspecies, or variety that is considered to be extinct. A List 1B plant is considered rare, threatened, or endangered in California and elsewhere. A List 2 plant is considered rare, threatened, or endangered in California but is more common elsewhere. A List 3 plant is a species for which CNPS lacks necessary information to determine if it should be assigned to a list or not. A List 4 plant has a limited distribution in California.

All of the plant species on List 1 and List 2 meet the requirements of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the CDFG Code, and are eligible for State listing. Therefore, plants appearing on Lists 1 or 2 are considered to meet CEQA's Section 15380 criteria and effects to these species are considered "significant" in this document.

g. Santa Rosa Plain Conservation Strategy. The Santa Rosa Plain Conservation Strategy (Strategy) was developed to create a long-term conservation plan to mitigate the potential adverse impact of future development on federally-listed plants and animals in the Santa Rosa Plain. The Santa Rosa Plain is a generally flat landscape that historically supported open valley oak (*Quercus lobata*) woodland and grassland (savannah). The Strategy protects and contributes to the recovery of Burke's goldfields, Sonoma sunshine, Sebastapol meadowfoam, many flowered navarretia, and California tiger salamander. The Strategy also incorporates earlier USFWS Section 7 guidance for projects that would affect listed vernal pool plants or their habitat, such as the *Programmatic Formal Consultation for the U.S. Army Corps of Engineers 404 Permitted Projects that May Affect Four Endangered Plant Species on the Santa Rosa Plain*.

The Strategy identifies eight conservation areas for listed plants and California tiger salamanders, one listed plant and California tiger salamander preserve system, and one listed plant conservation area. Conservation areas delineate lands where project-related impacts to listed species should be mitigated. The Strategy also encourages the establishment of preserves within these areas; translocation of listed species; habitat improvement through wetland creation, restoration and enhancement; and mitigation measures to reduce and compensate for impacts. Projects in the Santa Rosa Plain that potentially affect these federally-listed species should evaluate those effects and implement mitigation measures based on recommendations in the Strategy.

Under the Conservation Strategy, much of the undeveloped part of the Airport falls within the "Windsor Listed Plant Conservation Area." The remainder of the undeveloped areas in the Airport are located either within an area described as "Potential for Presence of California Tiger Salamander and Listed Plants" or within designated Mitigation Preserves (i.e., Sonoma County Airport Consolidated Wetland Mitigation Area (SACMA), SACMA-2, Goldfields Preserve and the Laughlin Road Mitigation Area).

The Conservation Strategy and the earlier Programmatic Biological Opinion for listed plants contain various mitigation guidelines and requirements that would apply to any projects in the study area. Lands designated as "Existing Mitigation Preserves" are permanently protected. Impacts to these lands would generally not be allowed. Lands designated as "Windsor Listed Plant Conservation Area" and within the Potential for Presence of California Tiger Salamander and Listed Plants" are subject to mitigation guidelines (see Appendix A).

2. Site Conditions

The area studied as part of the biological assessment consists of an infield between the runways and taxiways, parcels directly adjacent to the existing runways and taxiways, small parcels to the east of the eastern taxiway, and several biological preserves. The topography of the area is generally flat with variously sized depressions, swales, and ditches, some of which pond water during the rainy season. Elevations in the study area range from approximately 90 to 120 feet above mean sea level. A large portion of the property is irrigated with treated wastewater and mowed throughout the year.

The Airport is located within the northern portion of the USFWS Santa Rosa Plain Conservation Strategy Area (SRPCSA). The northern portion of the SRPCSA is referred to as the “airport region.” The boundary of the SRPCSA generally coincides with edge of the Santa Rosa Plain. This landscape is crossed by several prominent creeks that flow to the west into the Laguna de Santa Rosa (Laguna) along the western edge of the Plain. Historically, much of the Plain also supported extensive vernal pool-swale complexes that also drained to the Laguna. Extensive stands of riparian woodland historically occurred along the Laguna, which flows to the north, along the western edge of the Plain, and eventually drains to the Russian River via Mark West Creek. Much of the Plain’s vernal pool and riparian habitat has been lost to development over the past century. Nearly all the soil types found in the study area are capable of supporting vernal pool wetlands and their associated listed plant species.

The existing conditions on the project site and its vicinity are described below for three categories of biological resources: 1) Vegetation Communities and Wildlife Habitats; 2) Special-status Plants; and, 3) Special-status Species.

a. Vegetation Communities and Wildlife Habitats. Habitats and vegetation communities in the study area are mapped in and included in Appendix A. Most of the study area that has not been developed for Airport uses consists of ruderal grassland habitat that is irrigated with treated wastewater (302.1 acres). Hydrophytic vegetation is present in some of these irrigated portions of the study area, including Italian ryegrass (*Lolium multiflorum*), umbrella sedge (*Cyperus eragrostis*), velvet grass (*Holcus lanatus*) and Harding grass.

Wetland and riparian habitats present on the site include seasonal wetlands (including vernal pools and swales) (23.1 acres of vernal pools/swales/seasonal wetlands and 3,667 linear feet of swales); perennial ponds (0.86 acre) and perennial creeks (4,628 linear feet), and riparian woodland/valley oaks (17.3 acres).¹¹ The study area also supports 185.1 acres of non-native grassland/ruderal grasslands dominated by non-native annual grasses and interspersed with native and non-native forbs (broadleaved plants). Non-native grasslands exist adjacent to the runways and are regularly mowed (97.6 acres). One agricultural area (4.9 acres) in the study area consists of a vegetable garden for the adjacent Sonoma County correctional facility. Developed areas in the study area are unvegetated areas that include the runways, taxiways, and Airport buildings and facilities (212.1 acres).

Except for the riparian woodland along Redwood Creek and Airport Creek and a stand of blue gum (*Eucalyptus globulus*) (1.6 acres), woody vegetation is primarily absent from the rest of the study area. There are a few individuals of coast live oak (*Quercus agrifolia*), Fremont’s cottonwood (*Populus fremontii*), red willow (*Salix laevigata*), and coyote brush (*Baccharis pilularis*) that occur mostly in the southern portion of the infield.

The following sections describe some of the key habitats and vegetation communities in the study area.

(1) Non-native Grassland/Ruderal Grassland (42200)¹². Non-native annual grasslands and ruderal grasslands occur throughout the study area. Ruderal grasslands occur in disturbed areas and

¹¹ The wetland acreages provided herein are preliminary, and may change following completion of a formal wetland delineation study that is expected to be completed in the late summer 2006.

¹² Number in parenthesis refers to the NDDB/Holland plant community classification code number (Holland 1986 and Keeler-Wolf 1995).

are dominated by non-native vegetation. Non-native grasslands and areas supporting ruderal vegetation often support populations of small mammals. Mammal species present within the study area are described in Appendix A.

(2) Seasonal Wetlands including Vernal Pools and Swales (44100). The study area supports northern hardpan vernal pools. The majority of the seasonal wetlands are located in the Infield between the runways and in a 3,000-foot by 300-foot strip east of and parallel to Runway 14-32 and in the preserves. Based on the vegetation and distribution pattern of the vernal pools, the pools appear to be remnants of the historic pool systems that once encompassed much of the Santa Rosa Plain. A few vernal swales and pools are also scattered near the south end of Runway 14-32, along embankments and berms. These pools and swales appear to have been created inadvertently when some of the Airport features were constructed and currently contain plant species more typical of disturbed vernal pools. An extensive system of vernal pools and swales, encompassing more than 7 acres, was created between 1988 and 2002 in the SACMA, SACMA-II and Goldfields Preserve mitigation sites at the north end of the study area.

Vernal pools on the Santa Rosa Plain provide important breeding habitat for amphibians such as the Pacific treefrog (*Pseudacris regilla*), which has been documented within the study area.

(3) Freshwater Marsh (52410). Patches of freshwater marsh vegetation occur adjacent to certain seasonal wetlands and swales (including drainage ditches). Freshwater marsh occurs on Airport property in the Infield at the south end of the runways (Field 17) associated with six mitigation ponds created in 1988. Freshwater marsh also occurs to the west of the south end of Runway 1-19. Marsh vegetation also occurs in two wetland mitigation features that were constructed in 1998 in the southwest corner of the Airport, east of Runway 1-19. South of Runway 1-19, there is a pond approximately 1,000' long and 400' wide at its widest point, created for agricultural irrigation. Although the margins of the pond have been cleared and mowed to the waterline, occasional stands of freshwater marsh vegetation remain along the edges.

(4) Perennial Aquatic Habitat. The study area contains stream channels at Redwood Creek, Airport Creek, Mark West Creek, and a perennial pond in the southeastern portion of the site (Southeastern Pond). These features are unvegetated open water habitats, but adjacent to these features are stands of woody riparian and freshwater marsh vegetation.

Redwood Creek and Airport Creek are seasonal to perennial creeks that run along the northern boundary of the study area. Redwood Creek originates approximately ¼-mile to the west of Highway 101, and flows west for slightly more than 1 mile until it converges with Airport Creek just inside the northeast corner of the Airport property. This convergence occurs just after the creek flows into Airport property. Redwood Creek continues across the northern edge of the Airport, eventually joining Windsor Creek approximately 1.2 miles west of the Redwood Creek/Airport Creek confluence. Windsor Creek in turn flows into Mark West Creek some 1.5 miles southwest of the Airport. Mark West Creek is a perennial stream that occurs south of the Airport. It originates in the Sonoma Hills east of Highway 101 and flows westward, until joining the Russian River approximately 7 miles west of Highway 101.

The only fish species observed within the study area (Redwood Creek) was the threespine stickleback. It is likely that non-native fishes, such as western mosquitofish, are present in the Southeastern Pond, but this has not been confirmed by LSA biologists. The perennial ponds and creeks of the Santa Rosa Plain are generally not suitable as breeding site for native amphibians due to the presences of predatory fish including both native and non-native species. The American bullfrog (*Rana catesbeiana*), a non-native species, is present in many of the perennial ponds and creeks of Plain and is likely to occur in the Southeastern Pond.

A wide variety of water birds use the perennial ponds and creeks of the Santa Rosa Plain. Examples include Canada goose (*Branta canadensis*), mallard, American wigeon (*Anas americana*), green-winged teal (*Anas crecca*), bufflehead (*Bucephala albeola*), pied-billed grebe (*Podilymbus podiceps*), and black-crowned night heron (*Nycticorax nycticorax*); all these species have been observed within the study area or in adjacent areas.

(5) Riparian Woodland (61000). The Redwood Creek/Airport Creek corridor supports a 40 to 80 foot-wide riparian woodland community that continues with few interruptions until its eventual confluence with Windsor Creek. There is one 400-foot section of the creek at the end of Runway 14-32 that is maintained clear of all woody vegetation to meet safety compliance standards for the Airport, as required by the Federal Aviation Administration (FAA). To the east of the Airport, the upstream stretch of Redwood Creek has been cleared of woody vegetation and flows through a trapezoidal channel with little riparian habitat. The only other significant opening in the riparian canopy west of the Redwood Creek/Airport Creek confluence and east of Windsor Road is a narrow (20 foot wide) opening in the canopy with a bridge to allow an aircraft rescue and firefighting vehicle crossing approximately 180 east of the 400 foot clearing. The woodlands along Redwood and Airport Creeks tend to be dominated by oaks and species associated primarily with oaks are the most common.

b. Special Status Species Covered species or listed species are those species formally listed under the federal ESA. The presence of certain covered species have been documented in the study area region or have a potential to occur within the study area based on the known distribution of the species and the presence of suitable habitat in the study area. Candidate species are those species that are being considered for formal listing under the federal ESA; no candidate species are known to occur or potentially occur in the study area and are therefore not discussed below.

Six federally-listed plant species and three federally-listed animal species were identified as either present or potentially present within the study area. CNDDDB records of federally-listed plants and animals and critical habitat in the Airport region are mapped in Appendix A. The Airport region includes portions of those six quadrangles that are on the Santa Rosa Plain but not in the adjacent foothills.

(1) Special Status Animal Species. Animal species covered in this section include California freshwater shrimp (*Syncaris pacifica*), a Central California Coast Evolutionary Significant Unit (ESU) of steelhead, and California tiger salamander (*Ambystoma californiense*). California freshwater shrimp are associated with low gradient permanent streams on the Santa Rosa Plain. Steelhead spawn in flowing or intermittent streams with suitable cool temperatures and gravel or cobble substrate. The California tiger salamander is associated with vernal pools and adjacent uplands

on the Santa Rosa Plain. Detailed descriptions of the life histories and distribution of special status species can be found in the Biological Assessment included in Appendix A.

Critical habitat has been designated for the Central California Coast steelhead and occurs along Mark West Creek just southeast of the Airport property and along Windsor Creek to the north of the study area. In addition, critical habitat for the California coastal ESU Chinook salmon (*Oncorhynchus tshawytscha*) has been designated along lower Mark West Creek to the west of the study area, but does not include that portion of the creek adjacent to the Airport. Therefore, this species was not addressed in the biological assessment. Redwood and Airport Creeks drain to Windsor Creek, but these small drainages are not suitable for steelhead and, are not within designated critical habitat.

California Freshwater Shrimp (*Syncaris Pacific*). California freshwater shrimp are year-round residents of low elevation (less than 380 feet) perennial creeks with a low gradient (generally less than one percent). California Freshwater Shrimp are USFWS- and CDFG-listed endangered species. Mark West Creek, located just outside the study area, may provide suitable habitat for California freshwater shrimp, based on the prevalence of exposed roots and vegetation extending into the water, and the creek's historic perennial flows. However, this species has not been observed in the creek. There are also no records of the California freshwater shrimp within the study area. LSA biologists conducted a habitat assessment of Redwood and Airport Creeks within the study area on February 2, 2006. The assessment verified the lack of suitable habitat conditions for freshwater shrimp in the vicinity of the study area.

Steelhead (*Oncorhynchus Mykiss*). The steelhead is a native salmonid of the North Pacific Ocean and the associated fresh water drainages of western North America and northeast Asia. Steelhead are a USFWS threatened species and a CDFG California species of special concern. Within the Airport region, steelhead occur in suitable habitat throughout the Russian River drainage; however, spawning areas are concentrated in the middle and upper reaches of its tributary streams. Although suitable spawning habitat is present mainly in the tributary streams (e.g., Mark West Creek), the river and its major tributaries are essential movement corridors for fish migrating up and downstream to and from the spawning areas. In the Airport vicinity steelhead occur (depending on the season) in the Laguna de Santa Rosa, Mark West Creek, and Windsor Creek. There are no records of steelhead in Redwood or Airport Creeks. LSA biologists conducted a steelhead habitat assessment of Redwood and Airport Creeks within the study area on February 2, 2006. The creeks do not contain suitable spawning, rearing, or migration habitat for steelhead.

California Tiger Salamander (*Ambystoma Californiense*). The Sonoma County population of the California tiger salamander is a USFWS-listed endangered species and a CDFG species of special concern. Although the Airport is within the presumed historic geographic range of the California tiger salamander, there are no records of this species within 3.1 miles (5 km) of the study area. There are also no records of California tiger salamanders within the study area. LSA biologists surveyed the vernal pools in the Goldfields Preserve for California tiger salamander larva in 2005 and none were found. Based on the lack of historical records of California tiger salamanders from the northern portion of the Plain (i.e., north of Santa Rosa Creek) and the negative finding of numerous surveys for California tiger salamander in the area around the Airport it is unlikely that this species occurs within the study area.

(2) Special-Status Plant Species. Detailed descriptions of special status plants can be found in the biological assessment included in Appendix A.

Burke's Goldfields (*Lasthenia Burkei*). Burke's goldfields is an annual species in the sunflower family (Asteraceae) that occupies vernal pools, swales, wet meadows, and seeps. Burke's Goldfield's is a USFWS- and CDFG-listed endangered species and a CNPS List 1B species (i.e., plant rare, threatened, or endangered in California and elsewhere). Occurrences in the Airport region are located north, northeast and south of the study area. A population has also been introduced at the SACMA Preserve, directly north of Airport Boulevard. In the spring of 2005, LSA also found one individual Burke's goldfields at the SACMA II Preserve. Sub-populations of Burke's goldfields occur in three locations on the Airport property, all of which are designated as protected preserves: SACMA Preserve, Goldfields Preserve, and the Runway 14-32 Wetland Preserve.

Sonoma Sunshine (*Blennosperma Bakeri*). Sonoma sunshine is an annual species in the sunflower family (Asteraceae) that occupies vernal pools, swales, and mesic grasslands. Sonoma sunshine is a USFWS- and CDFG-listed endangered species and a CNPS List 1B species (i.e., a plant that is rare, threatened, or endangered in California and elsewhere). Sonoma sunshine is not known to occur in the study area and was not observed in the Airport study area by LSA botanists during two years of appropriately timed surveys in 2003 and 2004.

Sebastopol Meadowfoam (*Limnanthes Vinculans*). Sebastopol meadowfoam is an annual species in the meadowfoam family (Limnanthaceae) that occupies vernal pools/swales and wet grasslands and meadows, commonly in valley oak savanna, on poorly drained soils of clay and sandy loam. Sebastopol meadowfoam is a USFWS- and CDFG-listed endangered species and a CNPS List 1B species (i.e., plant rare, threatened, or endangered in California and elsewhere). A population that occurred in a swale near the area that is presently the Sonoma County Airport's Goldfields Preserve is reported as extinct. The swale is currently dominated by freshwater marsh perennials and no longer provides habitat for the meadowfoam (Pavlik, et al. 1998, as cited in CNDDB 2006). This population was not observed by LSA botanists during surveys of the Goldfields Preserve as a reference site in 2003 and 2004.

Many-flowered Navarretia (*Navarretia leucocephala* ssp. *plieantha*). Many-flowered navarretia is an annual species of the phlox family (Polemoniaceae) that occupies vernal pools situated on volcanic ash flows. Many-flowered Navarretia is a USFWS and CDFG-listed endangered species and a CNPS List 1B species (i.e., plant rare, threatened, or endangered in California and elsewhere). This species is not known to occur in the study area and was not observed in the Airport survey area by LSA botanists during two years of appropriately timed surveys in 2003 and 2004.

White Sedge (*Carex Albida*). White sedge is a perennial herb in the sedge family (Cyperaceae) that occurs in freshwater marshes, swamps and bogs. White Sedge is a USFWS- and CDFG-listed endangered species and a CNPS List 1B species (i.e., a plant rare, threatened, or endangered in California and elsewhere). This species is not known to occur in the study area and was not observed in the Airport survey area by LSA botanists during two years of appropriately timed surveys in 2003 and 2004.

Showy Indian Clover (*Trifolium Amoenum*). Showy Indian clover is an annual plant in the pea family (Fabaceae) that occurs along coastal bluffs and in grassland habitats. Showy Indian clover

is a USFWS and CDFG listed endangered species and a CNPS List 1B species (i.e., plant rare, threatened, or endangered in California and elsewhere). This species is not known to occur in the study area and was not observed in the Airport survey area by LSA botanists during two years of appropriately timed surveys in 2003 and 2004. The potential for occurrence on Airport lands is very low due to the highly disturbed nature of the Airport's grasslands, on-going wastewater irrigation and mowing.

F. CULTURAL AND PALEONTOLOGICAL RESOURCES

A cultural and paleontological resources sensitivity analysis for the Airport was conducted as part of this report. Information obtained through background research and consultation provided the basis for this section. The results of the analyses are presented in greater detail in a Cultural and Paleontological Resources Memorandum (included as Appendix C of this report). This section summarizes the findings of the Cultural and Paleontological Resources Memorandum.

1. Cultural Resources

A records search was conducted on March 20, 2006, at the Northwest Information Center (NWIC) of the California Historical Resources Information System. The records search indicated that 13 cultural resources studies have been conducted in the vicinity of the Airport. Twenty-three studies have been conducted within a ¼ mile of the Airport.

a. Identified Cultural Resources. Should they be present on the Airport site, unidentified archaeological deposits may contain information important in prehistory. Two cultural resources, enumerated P-49-2795 and CA-SON-1322 by the NWIC, are recorded within the Airport boundaries (see Figure 1, Appendix C). Four cultural resources are recorded with ¼-mile of the Airport. Cultural resource P-49-2795 is the remains of a concrete building pad, a ditch, and a power pole, all constructed during World War II and associated with the operation of the Santa Rosa Army Airfield, which was converted to the Sonoma County Airport. Cultural resource CA-SON-1322 is a prehistoric archaeological site consisting of a scatter of obsidian and chert debitage (the waste created by the manufacture and maintenance of chert implements), and heat-affected rock.

Historical maps at the NWIC show numerous parcels and associated buildings within the Airport site. The General Land Office plat of Township 8 North, Ranch 9 West (1864) shows several fence lines and a portion of a road that connected to the "Windsor-Healdsburg Road" in the Airport area.

As part of the records search, State of California inventories for cultural resources in and adjacent to the project area were also reviewed. The Airport property contains no cultural resources listed in these inventories. Native American Heritage Commission (NAHC) review of the sacred lands file shows no known Native American cultural resources within or adjacent to the Sonoma County Airport site. The Sonoma County Historical Society was contacted several times in April 2006, but did not reply.

Various publications and maps for archaeological, historical, ethnographic, and environmental information about the Airport and its vicinity were also reviewed. These publications and maps indicate that the Airport property once contained (during the historic period) several buildings and a portion of a road.

Although almost all of the Airport property has been archaeologically surveyed, there is the possibility of buried archaeological sites on the property. Due to its proximity to Laguna de Santa Rosa tributaries and its location in central Sonoma County, the Airport has the potential to contain unidentified prehistoric archaeological deposits. Because historical maps indicate that 19th century buildings were once located in the area, there is also the possibility of associated historical archaeological deposits underlying contemporary development.

b. Unidentified Archaeological Deposits. Should they be present on the Airport site, unidentified archaeological deposits may contain information important in prehistory or history, and therefore may qualify for listing in the California Register of Historical Resources. Such eligibility would qualify the sites for consideration as historical resources under the California Environmental Quality Act (CEQA) (PRC §21084.1). CEQA requires that historical resources be taken into account during the CEQA planning process (CCR Title 14(3) § 15064.5) (see discussion below).

2. Paleontological Resources

A fossil locality search and literature review for the project area did not identify any paleontological resources within or adjacent to the Airport property. However, the geologic units underlying the project area may contain fossils.

The project area lies on Pleistocene (2 million years to 10,000 years old) alluvial deposits, which are known to contain significant fossil resources in the vicinity of the project area. Pleistocene vertebrate fossils include, but are not limited to horses, mastodons, mammoths, bison, camels, ground sloths, saber-toothed cats, canids, mustelids, rodents, reptiles, amphibians and birds. There is a possibility of encountering significant paleontological resources in the Pleistocene alluvial sediments that directly underlie the soils within the Airport property and vicinity.

3. Regulatory Requirements

The following CEQA requirements apply to the cultural and paleontological resources within and in the vicinity of the Airport.

CEQA defines a “historical resource” as a resource that is: 1) listed in, or determined eligible for listing, in the California Register of Historical Resources (California Register); 2) listed in a local register of historical resources as defined in Public Resources Code (PRC) Section 5020.1(k); 3) identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or 4) determined to be a historical resource by a project’s lead agency under *CEQA Guidelines* Section 15064.5(a). A historical resource consists of:

“Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.... Generally, a resource shall be considered by the lead agency to be ‘historically significant’ if the resource meets the criteria for listing on the California Register of Historical Resources” *CEQA Guidelines* Section 15064.5(a)(3).

In accordance with *CEQA Guidelines* Section 15064.5(b), a substantial adverse change in the significance of a historical resource is a significant effect on the environment.

CEQA requires a lead agency to determine if an archaeological cultural resource meets the definition of a historical resource or a unique archaeological resource (*CEQA Guidelines* Section 15064.5(c)). Prior to considering potential impacts, the lead agency must determine whether an archaeological cultural resource meets the definition of a historical resource in *CEQA Guidelines* Section 15064.5(c)(1). If the archaeological cultural resource meets the definition of a historical resource, then it is treated like any other type of historical resource in accordance with *CEQA Guidelines* Section 15126.4. If the archaeological cultural resource does not meet the definition of a historical resource, then the lead agency must determine if it meets the definition of a unique archaeological resource, as defined at CEQA Section 21083.2(g). In practice, however, most archaeological sites that meet the definition of a unique archaeological resource will also meet the definition of a historical resource.¹³ Should the archaeological cultural resource meet the definition of a unique archaeological resource, then it must be treated in accordance with CEQA Section 21083.2. If the archaeological cultural resource does not meet the definition of a historical resource or an archaeological resource, then effects to the resource are not considered significant effects on the environment (*CEQA Guidelines* Section 15064.5(c)(4)).

California Health and Safety Code (HSC) Section 7050.5 states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

Public Resources Code (PRC) Section 5097.5 provides for the protection of cultural and paleontological resources. This PRC section prohibits the removal, destruction, injury, or defacement of archaeological and paleontological features on any lands under the jurisdiction of State or local authorities.

¹³ Bass, Ronald E., Albert I. Herson, and Kenneth M. Bogdan, 1999:105. *CEQA Deskbook: A Step-by-Step Guide on how to Comply with the California Environmental Quality Act*. Solano Press Books, Point Arena, California.